



DEPARTMENT OF ENERGY

10 CFR Part 431

EERE-2019-BT-STD-0044

RIN 1904-AE41

Energy Conservation Program: Energy Conservation Standards for Commercial Clothes Washers

AGENCY: Office of Energy Efficiency and Renewable Energy, Department of Energy.

ACTION: Notification of proposed determination and request for comment.

SUMMARY: The Energy Policy and Conservation Act (“EPCA”), as amended, prescribes energy conservation standards for various consumer products and certain commercial and industrial equipment, including commercial clothes washers (“CCWs”). EPCA also requires the U.S. Department of Energy (“DOE”) to periodically determine whether more-stringent, amended standards would be technologically feasible and economically justified, and would result in significant conservation of energy. In this notification of proposed determination (“NOPD”), DOE has initially determined that amended energy conservation standards for commercial clothes washers do not need to be amended and requests comment on this proposed determination and the associated analyses and results.

DATES: *Meeting:* DOE will hold a webinar on Tuesday, February 8, 2022, from 12:30 p.m. to 4:30 p.m. See section VII, “Public Participation,” for webinar registration

information, participant instructions, and information about the capabilities available to webinar participants.

Comments: Written comments and information are requested and will be accepted on or before **[INSERT DATE 60 DAYS AFTER DATE OF PUBLICATION IN THE *FEDERAL REGISTER*]**.

ADDRESSES: Interested persons are encouraged to submit comments using the Federal eRulemaking Portal at *www.regulations.gov*. Follow the instructions for submitting comments. Alternatively, interested persons may submit comments, identified by docket number EERE–2019–BT–STD-0044 and/or RIN number 1904-AE41, by any of the following methods:

1. *Federal eRulemaking Portal: www.regulations.gov.* Follow the instructions for submitting comments.
2. *E-mail: to CommClothesWashers2019STD044@ee.doe.gov.* Include docket number EERE–2019–BT–STD-0044 and/or RIN number 1904-AE41 in the subject line of the message.

No telefacsimiles (“faxes”) will be accepted. For detailed instructions on submitting comments and additional information on this process, see section VII of this document.

Although DOE has routinely accepted public comment submissions through a variety of mechanisms, including postal mail and hand delivery/courier, the Department has found it necessary to make temporary modifications to the comment submission process in light of the ongoing coronavirus 2019 (“COVID-19”) pandemic. DOE is currently suspending receipt of public comments via postal mail and hand

delivery/courier. If a commenter finds that this change poses an undue hardship, please contact Appliance Standards Program staff at (202) 586-1445 to discuss the need for alternative arrangements. Once the COVID-19 pandemic health emergency is resolved, DOE anticipates resuming all of its regular options for public comment submission, including postal mail and hand delivery/courier.

Docket: The docket, which includes *Federal Register* notices, webinar attendee lists and transcripts, comments, and other supporting documents/materials, is available for review at www.regulations.gov. All documents in the docket are listed in the www.regulations.gov index. However, not all documents listed in the index may be publicly available, such as information that is exempt from public disclosure.

The docket web page can be found at www.regulations.gov/docket/EERE-2019-BT-STD-0044. The docket web page contains instructions on how to access all documents, including public comments, in the docket. See section VII, “Public Participation,” for further information on how to submit comments through www.regulations.gov.

FOR FURTHER INFORMATION CONTACT:

Mr. Bryan Berringer, U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy, Building Technologies Office, EE-5B, 1000 Independence Avenue, SW., Washington, DC, 20585-0121. Email: ApplianceStandardsQuestions@ee.doe.gov.

Ms. Kathryn McIntosh, U.S. Department of Energy, Office of the General Counsel, GC-33, 1000 Independence Avenue, SW., Washington, DC, 20585-0121. Telephone: (202) 586-2002. E-mail: Kathryn.McIntosh@hq.doe.gov.

For further information on how to submit a comment or review other public comments and the docket contact the Appliance and Equipment Standards Program staff at (202) 287-1445 or by email: *ApplianceStandardsQuestions@ee.doe.gov*.

SUPPLEMENTARY INFORMATION:

Table of Contents

- I. Synopsis of the Proposed Determination
- II. Introduction
 - A. Authority
 - B. Background
 - 1. Current Standards
 - 2. History of Standards Rulemakings for Commercial Clothes Washers
- III. General Discussion
 - A. Scope of Coverage
 - B. Equipment Classes
 - C. Test Procedure
 - D. Technological Feasibility
 - 1. General
 - 2. Maximum Technologically Feasible Levels
 - E. Energy Savings
 - 1. Determination of Savings
 - 2. Significance of Savings
 - F. Cost Effectiveness
 - G. Further Considerations
- IV. Methodology and Discussion of Related Comments
 - A. Energy and Water Use Metrics
 - B. Technology Assessment
 - C. Screening Analysis
 - 1. Screened-Out Technologies
 - 2. Remaining Technologies
 - D. Engineering Analysis
 - 1. Baseline Efficiency
 - 2. Higher Efficiency Levels
 - E. Energy and Water Use Analysis
 - F. Shipments Analysis
 - G. National Energy and Water Savings Analysis
 - 1. Equipment Efficiency Trends
 - 2. National Energy and Water Savings
 - H. Further Considerations
- V. Conclusions
 - A. General Comments from Interested Parties
 - B. Technological Feasibility
 - C. Significant Conservation of Energy
 - D. Cost-Effectiveness
 - E. Further Considerations
 - F. Summary

VI. Procedural Issues and Regulatory Review

- A. Review Under Executive Order 12866
- B. Review Under the Regulatory Flexibility Act
- C. Review Under the Paperwork Reduction Act
- D. Review Under the National Environmental Policy Act of 1969
- E. Review Under Executive Order 13132
- F. Review Under Executive Order 12988
- G. Review Under the Unfunded Mandates Reform Act of 1995
- H. Review Under the Treasury and General Government Appropriations Act, 1999
- I. Review Under Executive Order 12630
- J. Review Under the Treasury and General Government Appropriations Act, 2001
- K. Review Under Executive Order 13211
- L. Review Under the Information Quality Bulletin for Peer Review

VII. Public Participation

- A. Participation in the Webinar
- B. Procedure for Submitting Prepared General Statements for Distribution
- C. Conduct of the Webinar
- D. Submission of Comments
- E. Issues on Which DOE Seeks Comment

VIII. Approval of the Office of the Secretary

I. Synopsis of the Proposed Determination

Title III, Part C¹ of EPCA² established the Energy Conservation Program for Certain Industrial Equipment. (42 U.S.C. 6311–6317) Such equipment includes CCWs, the subject of this NOPD. (42 U.S.C. 6311(1)(H))

DOE is issuing this NOPD pursuant to the EPCA requirement that not later than 6 years after issuance of any final rule establishing or amending a standard, DOE must publish either a notification of determination that standards for the equipment do not need to be amended, or a notice of proposed rulemaking (“NOPR”) including new proposed energy conservation standards (proceeding to a final rule, as appropriate). (42 U.S.C. 6316(a); 42 U.S.C. 6295(m))

¹ For editorial reasons, upon codification in the U.S. Code, Part C was redesignated Part A-1.

² All references to EPCA in this document refer to the statute as amended through the Energy Act of 2020, Pub. L. 116-260 (Dec. 27, 2020).

For this proposed determination, DOE analyzed CCWs subject to standards specified in 10 CFR 431.156(b).

DOE first analyzed the technological feasibility of more energy and water efficient CCWs. For those CCWs for which DOE determined higher standards to be technologically feasible, DOE estimated energy savings that would result from potential energy conservation standards by using the same approach as when it conducts a national impacts analysis. DOE also considered the estimated impacts of amended energy conservation standards on manufacturers of CCWs. Based on the results of the analyses, summarized in section 0 of this document, DOE has tentatively determined that current standards for CCWs do not need to be amended.

II. Introduction

The following section briefly discusses the statutory authority underlying this proposed determination, as well as some of the historical background relevant to the establishment of standards for CCWs.

A. Authority

EPCA authorizes DOE to regulate the energy efficiency of a number of consumer products and certain industrial equipment. Title III, Part C of EPCA (42 U.S.C. 6311–6317, as codified), added by Pub. L. 95-619, Title IV, section 441(a), established the Energy Conservation Program for Certain Industrial Equipment, which sets forth a variety of provisions designed to improve energy efficiency. This equipment includes CCWs, the subject of this document. (42 U.S.C. 6311(1)(H)) EPCA prescribed initial standards for this equipment and directed DOE to conduct additional cycles of

rulemakings to determine whether the established standards should be amended. (42

U.S.C. 6313(e))

The energy conservation program under EPCA consists essentially of four parts: (1) testing, (2) labeling, (3) the establishment of Federal energy conservation standards, and (4) certification and enforcement procedures. Relevant provisions of EPCA include definitions (42 U.S.C. 6311), test procedures (42 U.S.C. 6314), labeling provisions (42 U.S.C. 6315), energy conservation standards (42 U.S.C. 6313), and the authority to require information and reports from manufacturers (42 U.S.C. 6316).

Subject to certain criteria and conditions, DOE is required to develop test procedures to measure the energy efficiency, energy use, or estimated annual operating cost of covered equipment. (42 U.S.C. 6316(a); 42 U.S.C. 6295(o)(3)(A) and 42 U.S.C. 6295(r)) Manufacturers of covered equipment must use the Federal test procedures as the basis for: (1) certifying to DOE that their equipment complies with the applicable energy conservation standards adopted pursuant to EPCA (42 U.S.C. 6316(a); 42 U.S.C. 6295(s)), and (2) making representations about the efficiency of that equipment (42 U.S.C. 6314(d)). Similarly, DOE must use these test procedures to determine whether the equipment complies with relevant standards promulgated under EPCA. (42 U.S.C. 6316(a); 42 U.S.C. 6295(s)) With respect to CCWs, EPCA requires that the test procedure for CCWs be the same as the test procedures established by DOE for residential clothes washers (“RCWs”). (42 U.S.C. 6314(a)(8)) Those test procedures appear at title 10 of the Code of Federal Regulations (“CFR”) part 430 subpart B appendix J2, *Uniform Test Method for Measuring the Energy Consumption of Automatic and Semi-automatic Clothes Washers* (“appendix J2”).

Federal energy conservation requirements generally supersede State laws or regulations concerning energy conservation testing, labeling, and standards. (42 U.S.C. 6316(a) and 42 U.S.C. 6316(b); 42 U.S.C. 6297) DOE may, however, grant waivers of Federal preemption for particular State laws or regulations, in accordance with the procedures and other provisions set forth under EPCA. (*See* 42 U.S.C. 6316(a) (applying the preemption waiver provisions of 42 U.S.C. 6297))

DOE must periodically review its already established energy conservation standards for covered equipment no later than 6 years from the issuance of a final rule establishing or amending a standard for covered equipment. (42 U.S.C. 6316(a); 42 U.S.C. 6295(m)) This 6-year look-back provision requires that DOE publish either a determination that standards do not need to be amended or a NOPR, including new proposed standards (proceeding to a final rule, as appropriate). (42 U.S.C. 6316(a); 42 U.S.C. 6295(m)(1)) EPCA further provides that, not later than 3 years after the issuance of a final determination not to amend standards, DOE must publish either a notification of determination that standards for the equipment do not need to be amended, or a NOPR including new proposed energy conservation standards (proceeding to a final rule, as appropriate). (42 U.S.C. 6316(a); 42 U.S.C. 6295(m)(3)(B)) DOE must make the analysis on which a determination is based publicly available and provide an opportunity for written comment. (42 U.S.C. 6316(a); 42 U.S.C. 6295(m)(2))

A determination under the 6-year look-back provision that amended standards are not needed must be based on consideration of whether amended standards will result in significant conservation of energy, are technologically feasible, and are cost effective. (42 U.S.C. 6316(a); 42 U.S.C. 6295(m)(1)(A) and 42 U.S.C. 6295(n)(2)) Under 42 U.S.C. 6295(o)(2)(B)(i)(II), an evaluation of cost-effectiveness requires DOE to consider

savings in operating costs throughout the estimated average life of the covered equipment in the type (or class) compared to any increase in the price, initial charges, or maintenance expenses for the covered equipment that are likely to result from the standard. (42 U.S.C. 6316(a); 42 U.S.C. 6295(n)(2) and 42 U.S.C. 6295(o)(2)(B)(i)(II))

A NOPR proposing new or amended standards, must be based on the criteria established under 42 U.S.C. 6295(o). (42 U.S.C. 6316(a); 42 U.S.C. 6295(m)(1)(B)) The criteria at 42 U.S.C. 6295(o) require that standards be designed to achieve the maximum improvement in energy efficiency, which the Secretary determines is technologically feasible and economically justified, and must result in significant conservation of energy. (42 U.S.C. 6295(o)(2)(A) and 42 U.S.C. 6295(o)(3)(B)) In deciding whether a proposed standard is economically justified, DOE must determine, after receiving public comment, whether the benefits of the standard exceed its burdens. (42 U.S.C. 6295(o)(2)(B)(i)) DOE must make this determination after receiving comments on the proposed standard, and by considering, to the greatest extent practicable, the following seven statutory factors:

(1) The economic impact of the standard on manufacturers and consumers of the products subject to the standard;

(2) The savings in operating costs throughout the estimated average life of the covered products in the type (or class) compared to any increase in the price, initial charges, or maintenance expenses for the covered products that are likely to result from the standard;

(3) The total projected amount of energy (or as applicable, water) savings likely to result directly from the standard;

- (4) Any lessening of the utility or the performance of the covered products likely to result from the standard;
- (5) The impact of any lessening of competition, as determined in writing by the Attorney General, that is likely to result from the standard;
- (6) The need for national energy and water conservation; and
- (7) Other factors the Secretary of Energy (Secretary) considers relevant.

(42 U.S.C. 6295(o)(2)(B)(i)(I)-(VII))

DOE is publishing this NOPD in satisfaction of the 6-year review requirement in EPCA.

B. Background

1. Current Standards

On December 15, 2014, DOE published a final rule (“December 2014 Final Rule”) to amend the standards for CCWs manufactured on or after January 1, 2018. 79 FR 74492. These standards are currently applicable and are codified in 10 CFR 431.156(b) and repeated in Table II.1.

Table II.1 Federal Energy Conservation Standards for Commercial Clothes Washers Manufactured On or After January 1, 2018

Equipment Class	Minimum Modified Energy Factor (“MEF₁₂”) <i>cubic feet (“ft³”)/kilowatt-hour (“kWh”)/cycle</i>	Maximum Integrated Water Factor (“IWF”) <i>gallons (“gal”)/ft³/cycle</i>
Top-Loading	1.35	8.8
Front-Loading	2.00	4.1

2. History of Standards Rulemakings for Commercial Clothes Washers

As described in section II.A of this document, EPCA established standards for CCWs³ and directed DOE to conduct two rulemakings to determine whether the established standards should be amended. (42 U.S.C. 6313(e)) DOE completed the first of these rulemakings by publishing a final rule on January 8, 2010 that amended energy conservation standards for CCWs manufactured on or after January 8, 2013. 75 FR 1122. DOE's most recent energy and water conservation standards for CCWs were published in the December 2014 Final Rule, which applied to CCWs manufactured on or after January 1, 2018. 79 FR 74492.

In support of the present review of the CCW energy conservation standards, DOE published a request for information ("RFI") on July 24, 2020 ("July 2020 RFI"), which identified various issues on which DOE sought comment to inform its determination of whether the standards for CCWs need to be amended. 85 FR 44795.

DOE received comments in response to the July 2020 RFI from the interested parties listed in Table II.

Table II.2 Written Comments Received in Response to July 2020 RFI

Organization(s)	Reference in this NOPD	Organization Type
Whirlpool Corporation	Whirlpool	Manufacturer
Appliance Standards Awareness Project, Alliance for Water Efficiency, American Council for an Energy-Efficient Economy, Natural Resources Defense Council, Northwest Power and Conservation Council	Joint Commenters	Efficiency Organizations
Association of Home Appliance Manufacturers and Coin Laundry Association	AHAM and CLA	Industry Associations
GE Appliances	GEA	Manufacturer
Pacific Gas and Electric Company, Southern California Edison, San Diego Gas & Electric Company	California Investor-Owned Utilities ("CA IOUs")	Investor-Owned Utilities
Northwest Energy Efficiency Alliance	NEEA	Efficiency Organization

³ EPCA prescribed that CCWs manufactured on or after January 1, 2007, shall have a Modified Energy Factor of at least 1.26 and a Water Factor of no more than 9.5. (42 U.S.C. 6313(e)(1))

A parenthetical reference at the end of a comment quotation or paraphrase provides the location of the item in the public record.⁴

III. General Discussion

DOE developed this proposed determination after considering comments, data, and information from interested parties that represent a variety of interests. This document addresses issues raised by these commenters.

For this NOPD, DOE evaluated whether amended standards are needed based on the whether such standards would result in significant conservation of energy, are technologically feasible, and are cost effective, as directed by EPCA. (42 U.S.C. 6316(a); 42 U.S.C. 6295(m)(1)(A) and 42 U.S.C. 6295(n)(2)) Additionally, DOE considered whether such standards would be economically justified according to the statutory factors established in EPCA. (42 U.S.C. 6316(a); 42 U.S.C. 6295(o)(2)(B)(i)(I) – (VII)) The results from this evaluation, discussed in section 0 of this document, provide the basis for DOE’s initial determination that energy conservation standards for CCWs do not need to be amended.

A. Scope of Coverage

This NOPD covers CCWs as defined by EPCA and codified by DOE at 10 CFR 431.152. “Commercial clothes washer” is defined as a soft-mounted⁵ front-loading or

⁴ The parenthetical reference provides a reference for information located in the docket. (Docket No. EERE-2019-BT-STD-0044, which is maintained at www.regulations.gov/docket/EERE-2019-BT-STD-0044). The references are arranged as follows: (commenter name, comment docket ID number, page of that document).

⁵ “Soft-mounted” is a term used by industry to mean not required to be bolted to a steel or concrete slab.

soft-mounted top-loading clothes washer that: (1) Has a clothes container compartment that (i) For horizontal-axis clothes washers, is not more than 3.5 cubic feet; and (ii) For vertical-axis clothes washers, is not more than 4.0 cubic feet; and (2) Is designed for use in (i) Applications in which the occupants of more than one household will be using the clothes washer, such as multi-family housing common areas and coin laundries; or (ii) Other commercial applications. 10 CFR 431.152. (*See also* 42 U.S.C. 6311(21))

NEEA and the CA IOUs recommended that DOE expand its scope of coverage to include larger CCWs with up to 8.0 ft³ capacity. (NEEA, No. 8 at pp. 9–10; CA IOUs, No. 7 at pp. 1–2) NEEA stated that larger-capacity clothes washers (both soft-mount and hard-mount) are often employed in laundromats and multi-family buildings. (NEEA, No. 8 at p. 9) The CA IOUs cited data from the 2013–2019 CLA Annual Industry Surveys and concluded, based on the surveys, that laundromats are continuing a multi-year trend toward higher-capacity machines.⁶ (CA IOUs, No. 7 at pp. 1–2) NEEA cited data from the CLA Annual Industry Survey published in 2019 (“2019 CLA Industry Survey”) indicating that 47 percent of clothes washers in laundromats have tub volumes larger than the capacity limits defined by DOE. (NEEA, No. 8 at p. 9) NEEA stated that these larger equipment enable consumers to wash larger loads and bulky items that do not fit into smaller machines. *Id.* NEEA estimated that expanding the scope of coverage up to 8 ft³ could save 0.3 quads of energy. *Id.* at p. 10. NEEA stated that the DOE test procedure could address larger CCWs because DOE already has granted test procedure waivers for RCWs with up to 8.0 ft³ capacity. *Id.*

NEEA and the CA IOUs also noted that the U.S. Environmental Protection Agency (“EPA”) includes larger CCWs in the ENERGY STAR Program. (NEEA, No. 8

⁶ 2013–2019 Annual Industry Surveys. *Coin Laundry Association*. More information available to members at: www.coinlaundry.org/.

at p. 10; CA IOUs, No. 7 at p. 2) NEEA asserted that covering larger-capacity clothes washers would provide equal treatment for all manufacturers, since businesses consider clothes washers of varying capacities for laundromats or multi-family housing, and some machines (*i.e.*, smaller-capacity models) are subject to standards, while others (*i.e.*, larger-capacity models) are not. (NEEA, No. 8 at p. 10) NEEA further cited the 2019 CLA Industry Survey and stated that 60 percent of laundromat owners list utility costs as one of the largest problems they face in their business. *Id.*

As noted, the EPCA definition for CCWs specifies that front-loading CCWs are no larger than 3.5 ft³ and top-loading CCWs are no larger than 4.0 ft³. Expansion of coverage beyond the statutorily-defined capacity limits is outside the scope of this proposed determination.

B. Equipment Classes

When evaluating and establishing energy conservation standards, DOE divides covered equipment into equipment classes by the type of energy used or by capacity or other performance-related features that justify differing standards. In making a determination whether a performance-related feature justifies a different standard, DOE must consider such factors as the utility of the feature to the consumer and other factors DOE determines are appropriate. (42 U.S.C. 6316(a); 42 U.S.C. 6295(q))

For CCWs, the current energy conservation standards specified in 10 CFR 431.156 are based on two equipment classes delineated according to the axis of loading: top-loading and front-loading.

In the December 2014 Final Rule, DOE determined specifically that the “axis of loading” constituted a feature that justified separate equipment classes for top-loading

and front-loading CCWs, and that “the longer average cycle time of front-loading machines warrants consideration of separate equipment classes.” 79 FR 74492, 74498. DOE stated that a split in preference between top-loading and front-loading CCWs would not indicate consumer indifference to the axis of loading, but rather that a certain percentage of the market expresses a preference for (*i.e.*, derives utility from) the top-loading configuration. 79 FR 74492, 74498–74499. DOE further noted that the separation of CCW equipment classes by location of access is similar in nature to the equipment classes for residential refrigerator-freezers, which include separate product classes based on the access of location of the freezer compartment (*e.g.*, top-mounted, side-mounted, and bottom-mounted), and for which the location of the freezer compartment provides no additional performance-related utility other than consumer preference. 79 FR 74492, 74499. In other words, the location of access itself provides a distinct consumer utility. *Id.*

In response to the June 2020 RFI, DOE received several comments regarding the CCW equipment classes.

The CA IOUs urged DOE to consider combining the top-loading and front-loading equipment classes for CCWs. (CA IOUs, No. 7 at pp. 5–6) The CA IOUs stated that the existence of separate equipment classes for top and front-loading CCWs prevents DOE from setting the most efficient energy and water standards possible—noting that standards for top-loading CCWs are less stringent than standards for front-loading CCWs. *Id.* In support of its assertion, the CA IOUs cited the 2013–2019 CLA Annual Industry Surveys that indicates that the CCW market is following a multi-year trend away from top-loading CCWs. *Id.* The CA IOUs also commented that a manufacturer had expressed support for the consolidation of RCW product classes in comments submitted

in response to an RFI published August 2, 2019.⁷ *Id.* The CA IOUs noted that the most recent ENERGY STAR Clothes Washer Specification consolidated requirements for top-loading and front-loading CCWs. *Id.* The CA IOUs also commented that, although DOE concluded in the December 2014 Final Rule that method of loading is a feature that provides distinct customer utility, benefits such as faster cycle time and lower first cost have become less differentiated between top-loading and front-loading CCWs. *Id.* The CA IOUs stated that method of loading alone is insufficient to justify a separate, lower standard under EPCA, and recommend that DOE reconsider consolidating classes. *Id.*

The Joint Commenters recommended that DOE eliminate the equipment class distinctions for top-loading and front-loading CCWs, stating that evaluating potential amended standards for a single, consolidated equipment class would allow for achieving greater savings. (Joint Commenters, No. 4 at p. 3) The Joint Commenters asserted that method of loading provides a distinct utility for purchasers of such equipment. *Id.*

DOE disagrees with the CA IOUs that a trend in decreasing top-loading versus front-loading sales indicates that the equipment classes should be combined. Rather, the continued availability and purchase of top-loading CCWs indicates that a portion of the market continues to express a preference for (*i.e.*, derives utility from) the top-loading configuration.

In response to the CA IOUs' comment that differences in cycle time and first cost between the two equipment classes have become smaller, DOE acknowledges, as in the December 2014 Final Rule, that differences in cycle times between top-loading and front-loading CCWs have diminished due to improvements in front-loading technology, and

⁷ 84 FR 37794. The CA IOUs referenced comment number 12 on that rulemaking, which can be found at www.regulations.gov/docket/EERE-2017-BT-STD-0014.

that as technology has progressed, cycle time has become a less meaningful differentiator between CCW equipment classes. 79 FR 74492, 74499. Furthermore, DOE does not separate equipment classes based on upfront costs that anyone, including the consumer, laundromat owner, or manufacturer, may bear. *Id.* at 79 FR 74498.

In response to the CA IOUs' and Joint Commenters' comments that method of loading alone does not provide a distinct utility and is insufficient to justify a separate standard, DOE reiterates its determination from the December 2014 Final Rule that method of loading provides specific utility that warrants separate equipment classes. 79 FR 74492, 74498–74499. DOE further reiterates its statement from the December 2014 Final Rule that it views utility as an aspect of the product (or equipment, in the case of CCWs) that is accessible to the layperson and is based on user operation, rather than performing a theoretical function. *Id.* DOE determines consumer utility on a case-by-case basis and determines what value a product (or equipment) could have based on the consumer base and the associated technology. *Id.* For example, front-loading CCWs are stackable⁸ and can be useful in a concentrated laundromat or multifamily housing setting. *Id.* On the other hand, top-loading CCWs provide the utility of adding clothes during the wash cycle. *Id.*

DOE further reiterates that within each established equipment class, DOE has set the standard level at a level that achieves the maximum improvement in energy efficiency that the Secretary determined was technologically feasible and economically justified, as required by EPCA. *Id.* at 79 FR 74536. (42 U.S.C. 6316(a); 42 U.S.C. 6295(o)(2)(A))

⁸ In this context, “stackable” refers to the ability to stack a clothes dryer on top of a front-loading CCW, which conserves space inside a laundromat or multi-family housing laundry facility.

Finally, DOE notes that the EPCA criteria for establishing equipment classes do not apply to the ENERGY STAR program and that the ENERGY STAR equipment classes and qualification levels are established by EPA in a separate process that provides opportunities for stakeholder input.⁹

In this NOPD, DOE preliminarily maintains its conclusions from the December 2014 Final Rule that the method of loading is a feature that provides distinct consumer utility that justifies separate equipment classes under EPCA. (42 U.S.C. 6316(a); 42 U.S.C. 6295(q)) This NOPD analysis maintains separate equipment classes for top-loading and front-loading CCWs.

C. Test Procedure

EPCA sets forth generally applicable criteria and procedures for DOE's adoption and amendment of test procedures. (42 U.S.C. 6314(a)) Manufacturers of covered equipment must use these test procedures to certify to DOE that their equipment complies with energy conservation standards and to quantify the efficiency of their equipment. (42 U.S.C. 6316(a); 42 U.S.C. 6295(s); and 42 U.S.C. 6314(d))

As stated, EPCA requires that the test procedures for CCWs must be the same as the test procedures for RCWs. (42 U.S.C. 6314(a)(8)) Accordingly, DOE specifies at 10 CFR 431.154 that the test procedures for clothes washers at appendix J2 must be used to determine compliance with the standards for CCWs codified at 10 CFR 431.156(b).¹⁰

⁹ Information on participation in the ENERGY STAR program for CCWs is available at www.energystar.gov/products/commercial_clothes_washers/partners.

¹⁰ 10 CFR 431.154 also specifies that test procedures for clothes washers in appendix J1 to subpart B of part 430 ("appendix J1") must be used to test CCWs to determine compliance with the energy conservation standards at 10 CFR 431.156(a). These standards were applicable to CCWs manufactured on or after January 8, 2013, and before January 1, 2018.

appendix J2 includes provisions for determining the modified energy factor (“MEF_{J2}”)¹¹ in ft³/kWh/cycle and the integrated water factor (“IWF”) in gal/cycle/ft³. CCWs manufactured on or after January 1, 2018 must meet current standards, which are based on MEF_{J2} and IWF as determined using appendix J2. 10 CFR 431.154 and 10 CFR 431.156(b).

NEEA encouraged DOE to update CCW standards based on expected test procedure updates. (NEEA, No. 8 at pp. 7–8) NEEA referenced comments from its own organization as well as other interested parties that have previously been submitted to DOE in response to a residential and commercial clothes washer test procedure RFI published on May 22, 2020 (“May 2020 TP RFI”)¹²: a suggestion to incorporate a measure of cleaning performance in the test procedure; various changes to reduce test burden and increase representativeness; and a recommendation to consider an alternative energy metric. *Id.* NEEA further commented that changes to the CCW test procedure may warrant changes to the CCW standards. *Id.*

The Joint Commenters recommended that DOE's evaluation of potential CCW standards changes be based on an amended test procedure that better reflects real-world use. (Joint Commenters, No. 4 at p. 3) The Joint Commenters referenced their comments provided in response to the May 2020 TP RFI, which provided suggestions such as changing the Warm Wash/Cold Rinse temperature selection method, capturing the impact of cycle modifiers on energy and water use, and specifying an average load size independent of capacity.¹³ Additionally, the Joint Commenters commented that the

¹¹ Section 4.5 of appendix J2 defines the modified energy factor abbreviation as “MEF.” DOE defines the abbreviation “MEF_{J2}” at 10 CFR 431.152 to mean the modified energy factor as determined in section 4.5 of appendix J2.

¹² The May 2020 TP RFI is available online at www.regulations.gov/docket/EERE-2016-BT-TP-0011.

¹³ See comment number 10 in Docket number EERE-2016-BT-TP-0011. Available online at www.regulations.gov/docket/EERE-2016-BT-TP-0011.

test procedure is likely significantly underestimating drying energy for many clothes washers by providing what the Joint Commenters assert is an unrepresentative measurement of remaining moisture content (“RMC”). (Joint Commenters, No. 4 at p. 3)

DOE published a test procedure NOPR on September 1, 2021 (“September 2021 TP NOPR”) in which it responded to comments received in response to the May 2020 TP RFI, including the comments cited previously by NEEA and the Joint Commenters. 86 FR 49140. In the September 2021 TP NOPR, DOE has proposed amendments to the current appendix J2 test procedure as well as introduced a new test procedure that would be codified at appendix J to 10 CFR part 430 subpart B (“appendix J”), if finalized, and would be used for future evaluation of updated efficiency standards.

As discussed, EPCA requires that the test procedures for CCWs be the same as the test procedures established by DOE for RCWs. 42 U.S.C. 6314(a)(8). Use of appendix J2 is currently required for any representations of energy or water consumption of RCWs, including demonstrating compliance with the currently applicable energy conservation standards. Accordingly, DOE conducted the analysis presented in this document for CCWs based on energy and water use as measuring using appendix J2.

D. Technological Feasibility

1. General

In evaluating potential amendments to energy conservation standards, DOE conducts a screening analysis based on information gathered on all current technology options and prototype designs that could improve the efficiency of the products or equipment that are the subject of the determination. As the first step in such an analysis, DOE develops a list of technology options for consideration in consultation with

manufacturers, design engineers, and other interested parties. DOE then determines which of those means for improving efficiency are technologically feasible. DOE considers technologies incorporated in commercially available equipment or in working prototypes to be technologically feasible. 10 CFR 431.4; sections 6(c)(3)(i) and 7(b)(1) of appendix A to 10 CFR part 430 subpart C (“Process Rule”).

After DOE has determined that particular technology options are technologically feasible, it further evaluates each technology option in light of the following additional screening criteria: (1) practicability to manufacture, install, and service; (2) adverse impacts on equipment utility or availability; (3) adverse impacts on health or safety; and (4) unique-pathway proprietary technologies. 10 CFR 431.4; sections 6(c)(3)(ii)–(v) and 7(b)(2)–(5) of the Process Rule. Section IV.C of this document discusses the results of the screening analysis for CCWs, particularly the designs DOE considered, those it screened out, and those that are the basis for the higher efficiency levels considered in this proposed determination.

2. Maximum Technologically Feasible Levels

EPCA requires that in proposing an amended or new energy conservation standard, or proposing no amendment or no new standard for a type (or class) of covered equipment, DOE must determine the maximum improvement in energy efficiency or maximum reduction in energy use that is technologically feasible for each type (or class) of covered equipment. (42 U.S.C. 6316(a); 42 U.S.C. 6295(p)(1)) Accordingly, DOE conducts an engineering analysis, through which it determines the maximum technologically feasible (“max-tech”) improvements in energy efficiency, using the design parameters for the most efficient equipment available on the market or in working

prototypes. The max-tech levels that DOE determined for this analysis are described in section IV.D of this document.

E. Energy Savings

1. Determination of Savings

For each efficiency level (“EL”) evaluated, DOE projects energy savings from application of the EL to the equipment purchased in the 30-year period that begins in the assumed year of compliance with the potential standards (2024–2053). The savings are measured over the entire lifetime of the equipment purchased in the previous 30-year period. DOE quantifies the energy savings attributable to each EL as the difference in energy consumption between each standards case and the no-new-standards case. The no-new-standards case represents a projection of energy consumption that reflects how the market for the equipment would likely evolve in the absence of amended energy conservation standards. DOE uses the methodology from its national impact analysis (“NIA”) to estimate national energy savings (“NES”) from potential amended or new standards for CCWs. The methodology (described in section IV.G of this document) calculates energy savings in terms of site energy, which is the energy directly consumed by equipment at the locations where they are used. In addition to the evaluation of energy savings and consumption, which is the basis for determining the significance of such savings, DOE also evaluated potential water savings and consumption.

2. Significance of Savings

To adopt any new or amended standards for a covered product, DOE must determine that such action would result in “significant” energy savings. (42 U.S.C. 6295(o)(3)(B)) Although the term “significant” is not defined in the EPCA, the U.S. Court of Appeals, for the District of Columbia Circuit in *Natural Resources Defense*

Council v. Herrington, 768 F.2d 1355, 1373 (D.C. Cir. 1985), opined that Congress intended “significant” energy savings in the context of EPCA to be savings that were not “genuinely trivial.”

The significance of energy savings offered by a new or amended energy conservation standard cannot be determined without knowledge of the specific circumstances surrounding a given rulemaking.¹⁴ For example, the United States has now rejoined the Paris Agreement and will exert leadership in confronting the climate crisis.¹⁵ Additionally, some covered products and equipment have most of their energy consumption occur during periods of peak energy demand. The impacts of these products on the energy infrastructure can be more pronounced than products with relatively constant demand.

In evaluating the significance of energy savings, DOE considers differences in primary energy and full-fuel cycle (“FFC”)¹⁶ effects for different covered products and equipment when determining whether energy savings are significant. Primary energy and FFC effects include the energy consumed in electricity production (depending on load shape), in distribution and transmission, and in extracting, processing, and transporting primary fuels (*i.e.*, coal, natural gas, petroleum fuels), and thus present a more complete picture of the impacts of energy conservation standards.

¹⁴ The numeric threshold for determining the significance of energy savings established in a final rule published on February 14, 2020 (85 FR 8626, 8670), was subsequently eliminated in a final rule published on December 13, 2021 (86 FR 70892). The effective date of this rule is January 12, 2022.

¹⁵ See Executive Order 14008, 86 FR 7619 (Feb. 1, 2021) (“Tackling the Climate Crisis at Home and Abroad”).

¹⁶ The FFC metric includes the energy consumed in extracting, processing, and transporting primary fuels (*i.e.*, coal, natural gas, petroleum fuels), and thus presents a more complete picture of the impacts of energy conservation standards. The FFC metric is discussed in DOE’s statement of policy and notice of policy amendment. 76 FR 51281 (Aug. 18, 2011), as amended at 77 FR 49701 (Aug. 17, 2012).

Accordingly, DOE evaluates the significance of energy savings on a case-by-case basis.

F. Cost Effectiveness

Under EPCA's 6-year-lookback review provision for existing energy conservation standards at 42 U.S.C. 6295(m)(1) (as referenced by 42 U.S.C. 6316(a)), cost-effectiveness of potential amended standards is a relevant consideration both where DOE proposes to adopt such standards, as well as where it does not. In considering cost-effectiveness when making a determination of whether existing energy conservation standards do not need to be amended, DOE considers the savings in operating costs throughout the estimated average life of the covered equipment compared to any increase in the price of, or in the initial charges for, or maintenance expenses of, the covered equipment that are likely to result from a standard. (42 U.S.C. 6316(a); 42 U.S.C. 6295(m)(1)(A) (*referencing* 42 U.S.C. 6295(n)(2))) Additionally, any new or amended energy conservation standard prescribed by the Secretary for any type (or class) of covered equipment shall be designed to achieve the maximum improvement in energy efficiency which the Secretary determines is technologically feasible and economically justified. (42 U.S.C. 6316(a); 42 U.S.C. 6295(o)(2)(A)) Cost-effectiveness is one of the factors that DOE must ultimately consider to support a finding of economic justification, if it is determined that amended standards are appropriate under the applicable statutory criteria. (42 U.S.C. 6316(a); 42 U.S.C. 6295(o)(2)(B)(i)(II))

G. Further Considerations

As stated previously, pursuant to EPCA, if DOE does not issue a notification of determination that energy conservation standards for CCWs do not need to be amended, DOE must issue a NOPR that includes new proposed standards. (42 U.S.C. 6316(a); 42

U.S.C. 6295(m)(1)(B)) The new proposed standards in any such NOPR must be based on the criteria established under 42 U.S.C. 6295(o). (42 U.S.C. 6316(a); 42 U.S.C. 6295(m)(1)(B)) The criteria in 42 U.S.C. 6295(o) require that standards be designed to achieve the maximum improvement in energy efficiency, which the Secretary determines is technologically feasible and economically justified. (42 U.S.C. 6295(o)(2)(A)) In deciding whether a proposed standard is economically justified, DOE must determine whether the benefits of the standard exceed its burdens. (42 U.S.C. 6295(o)(2)(B)(i)) DOE must make this determination after receiving comments on the proposed standard, and by considering, to the greatest extent practicable, the seven statutory factors listed in section II.A of this document. The additional analysis conducted in consideration of whether amended standards would be economically justified, specifically an analysis of potential manufacturer impacts, is presented in section IV.H of this document.

IV. Methodology and Discussion of Related Comments

This section describes the results of the analyses DOE has performed for this proposed determination with regard to CCWs. Separate subsections address each component of DOE's analyses. DOE used shipments projections and calculated national energy and water savings expected from potential efficiency conservation standards.

A. Energy and Water Use Metrics

As discussed, manufacturers are required to demonstrate compliance with the current energy conservation standards for CCWs codified at 10 CFR 431.156(b), which are based on the MEF_{J2} metric and the IWF metric defined in appendix J2. MEF_{J2} is defined as the clothes container capacity in ft^3 divided by the sum of (1) the per-cycle machine energy, (2) the per-cycle water heating energy, and (3) the per-cycle drying

energy; expressed in kilowatt hours (“kWh”). A higher MEF_{J2} value indicates more efficient performance. IWF is defined as the total per cycle water use in gallons (“gal”) divided by the clothes container capacity in ft^3 . A lower IWF value indicates more efficient performance.

NEEA recommended that DOE adopt an alternative energy efficiency metric that would replace MEF_{J2} for CCWs. (NEEA, No. 8 at p. 11) NEEA suggested that the alternative energy efficiency metric be based on the weighted-average load size applicable to the machine (measured in pounds of textile), and the weighted-average energy use of the machine (measured in kWh per cycle). *Id.* NEEA also recommended alternatively that DOE develop an energy conservation standard that is a function of capacity. *Id.* NEEA stated that it expects that larger-capacity CCWs would likely need to meet higher MEF_{J2} and lower IWF requirements than smaller-capacity CCWs, given the general trend that larger-capacity appliances are more efficient. *Id.* NEEA commented that standards for CCWs that are a function of capacity would be similar to standards for products such as refrigerators, room air conditioners, and water heaters, where the standards are a function of adjusted volume, cooling capacity, and storage volume, respectively. *Id.*

NEEA further commented that improvement to standby power offers potential energy savings if DOE were to include standby power in the energy efficiency metric for CCWs, similar to the way it does for RCWs with the integrated modified energy factor (“IMEF”) metric. (NEEA, No. 8 at p. 2) NEEA estimated that improvements to standby power in CCWs could save 1.8 percent of total site energy use. *Id.*

NEEA provided results of its testing of 12 RCWs and two CCWs, encompassing both ENERGY STAR and non-ENERGY STAR-qualified models. (NEEA, No. 8 at pp. 8–9) In NEEA’s sample, the average standby power of CCWs was 6.4 watts (“W”) (which NEEA characterized as similar to DOE’s prior CCW standby measurements that ranged from 0.9 to 11.8 W), compared to 0.5 W for RCWs. *Id.* NEEA also commented that, while CCWs spend more time in the active cycle than RCWs, CCWs spend most of their time in standby and low-power modes. *Id.*

NEEA recommended that if DOE decides to measure CCW standby power, DOE should consider using IEC 62301: Edition 2.0 2011-01 (“Household electrical appliances – Measurement of standby power”)¹⁷ and incorporate low-power modes into the CCW measure of efficiency. (NEEA, No. 8 at p. 9) NEEA also recommended that DOE test the energy use of connected features in CCW energy use metrics as connected functionality becomes more common for CCWs in laundromats and multi-family households. *Id.*

As described, in the September 2021 TP NOPR, DOE proposed to establish a new clothes washer test procedure at appendix J. 86 FR 49140, 49143. As proposed, appendix J would establish new efficiency metrics that would be based on the weighted-average load size applicable to the machine (rather than on the clothes container capacity, on which the current metrics are based) and the weighted-average energy (or water) use of the machine. 86 FR 49140, 49143–49144. As discussed, the proposed test procedure has not been finalized, and is not used for this evaluation.

¹⁷ IEC 62301: Edition 2.0 2011-01: Household electrical appliances – Measurement of standby power. Available for purchase online at: webstore.iec.ch/publication/6789.

With regard to incorporating the energy use in standby mode into the energy efficiency metric for CCWs, DOE concluded in the December 2014 Final Rule that establishing amended standards for CCWs based on IMEF (*i.e.*, establishing a metric that integrates standby mode and off mode energy consumption into the overall efficiency metric) would not be technically feasible. 79 FR 74492, 74501. As discussed in the December 2014 Final Rule, promulgating amended standards based on IMEF could enable backsliding if the new equivalent baseline standard was established at a level that would accommodate all display and payment types.¹⁸ Alternatively, if DOE were to establish the new equivalent baseline standard level at the level corresponding to the lowest standby power observed on non-vended “push-to-start” models, manufacturers would be precluded from offering vend price displays, payment systems, or other advanced controls on new baseline CCWs, which would negatively impact consumer and end-user utility, since push-to-start models are not suitable for coin-operated laundries or most multi-family housing applications. *Id.* Finally, because of the wide variations in standby power, CCWs with significantly different active mode (*i.e.*, MEF) ratings could have similar IMEF ratings depending on their control panel functionalities, and vice versa. This would diminish the usefulness of the IMEF metric as a means for differentiating the active mode characteristics of different CCW models. *Id.* For these reasons, DOE determined that establishing amended standards for CCWs based on IMEF would not be technically feasible. *Id.*

As acknowledged by NEEA, the CCW standby power data submitted by NEEA is consistent with the data DOE used to conduct its analysis for the December 2014 Final Rule. DOE is not aware of, and commenters have not submitted, any data or information

¹⁸ The December 2014 Final Rule provides discussion of an example illustrating one potential backsliding scenario. 79 FR 74492, 74501.

that would cause DOE to reach a different conclusion than was reached in the December 2014 Final Rule. DOE tentatively reaffirms its prior conclusion that establishing amended standards for CCWs based on IMEF would not be technically feasible.

Regarding NEEA's recommendation to include the energy use associated with "connected" features in CCW energy use metrics, DOE described in the May 2020 TP RFI its understanding that connected features for CCWs are available via certain external communication modules, but that DOE is not aware of any CCW models with a "connected" function incorporated into the unit as manufactured currently on the market. 85 FR 31065, 31068. DOE's long-standing position is that generally the applicability of the energy conservation standards under EPCA is limited to newly manufactured products (or equipment), the title of which has not passed for the first time to a consumer of the product (or equipment). *See* 72 FR 58189, 58203 (Oct. 12, 2007). (*See also* 42 U.S.C. 6316(a); 42 U.S.C. 6302) As such, the impact of aftermarket connected features would be outside the scope of this analysis.

B. Technology Assessment

DOE develops information in the technology assessment that characterizes the technology options that manufacturers use to attain higher efficiency performance.

In the December 2014 Final Rule, DOE identified a number of technology options that manufacturers could use to reduce energy consumption in CCWs, as measured by the DOE test procedure. 79 FR 74492, 74504–74505. In the July 2020 RFI, DOE requested comment on any changes to these technology options or whether there are any other technology options that DOE should consider in its analysis. 85 FR 44795, 44797. DOE received several comments regarding potential technology options.

NEEA recommended that DOE consider technologies from the December 2014 Final Rule and the RCW energy conservation standards direct final rule (“DFR”) published on May 31, 2012 (77 FR 32308; “May 2012 RCW DFR”)¹⁹ that can reduce machine energy, hot water energy, and drying energy. (NEEA, No. 8 at pp. 3–4) In particular, NEEA suggested that DOE should focus on technologies that improve CCW water extraction to reduce drying energy consumption, given that drying energy is the largest contributor to the MEF_{J2} efficiency metric. *Id.* NEEA stated that a number of technologies are available that reduce RMC without increasing cycle time, which NEEA stated is important to keep relatively short for CCWs. *Id.* NEEA suggested that DOE evaluate the impact of increasing spin speeds to reduce RMC. *Id.* NEEA presented data from testing it conducted in 2020 showing that CCW spin speeds are lower, and RMCs are higher, than comparable RCWs. *Id.* NEEA also referenced an engineering tear-down it performed in 2019, which compared a top-loading ENERGY STAR-qualified RCW with a similar top-loading non-qualified RCW from the same manufacturer. *Id.* at p. 5 NEEA stated that its investigation revealed that changing to a higher power motor (0.4 instead of 0.33 horsepower) and a slightly larger-diameter pulley can increase the spin speed for top-loading clothes washers from 700 to 800 revolutions per minute, resulting in a lower RMC and a 25-percent reduction in calculated drying energy. *Id.* NEEA specifically recommended that DOE evaluate higher power motors and alternate gear ratios to reduce RMC and drying energy for CCWs. *Id.*

NEEA also suggested that DOE include increased basket perforation and a ribbed drum as technology options to reduce RMC. *Id.* NEEA commented that increasing basket perforation could improve RMC, stating that baskets with increased perforation

¹⁹ The RCW energy conservation standards DFR is available online at www.regulations.gov/docket/EERE-2008-BT-STD-0019.

allow more water to move out of the textiles for a given period of time because the length of the pathway for water to travel out of the textiles and the basket during the spin process is shortened if the basket has more exit holes. *Id.* NEEA also commented that a 2005 report found that clothes washers that use a ribbed drum can improve RMC by 20 percent. NEEA stated that is not aware of ribbed drum technology in the market. *Id.*

NEEA also recommended that DOE consider including using warmer rinse water temperatures as a technology option to improve RMC. *Id.* NEEA stated that because viscosity is lower with warmer water temperatures (around 40 percent lower at 100 degrees Fahrenheit (“°F”) versus 60 °F), water can be spun out more easily from textiles that have a warm rinse. *Id.* NEEA added that while more hot water heating energy may be incurred by a CCW with a warm rinse, the improved water extraction may offset the hot water energy use. *Id.*

NEEA further suggested that the range of RMC values present in the current market suggests that the costs to implement technologies that improve water extraction must be relatively low and thus are likely to be cost-effective. (NEEA, No. 8 at p. 6)

The Joint Commenters recommended that DOE investigate CCWs with card readers that can allow for a discounted price for a cold cycle as a technology option. (Joint Commenters, No. 4 at p. 3) The Joint Commenters asserted that discounted cold cycle prices may influence consumers to reduce hot water energy use when using coin-operated CCWs. *Id.*

Regarding NEEA’s recommendation to consider technologies that improve water extraction to improve RMC, DOE has identified multiple technology options specifically intended to reduce RMC. These include hardware features that enable faster spin speeds

(which include more advanced motor technologies) and longer spin duration, as suggested.

Regarding the use of warm rinse to reduce RMC, DOE is not aware of any CCWs that offer a warm rinse. DOE analysis suggests that the additional water-heating energy that would be associated with a heated rinse would offset the reduction in RMC (and associated drying energy) resulting from the higher water temperature. The following illustrative estimate demonstrates this likely offset in a representative top-loading CCW.

First, DOE estimated the reduction in RMC that could be expected from a warm rinse in comparison to a cold rinse. For this estimate, DOE referenced the standard RMC values defined in Table 6.1 of appendix J3²⁰ to 10 CFR part 430, subpart B (“appendix J3”), which are used as standardized reference points in generating correction factors for each new manufactured lot of energy test cloth.²¹ The standard RMC values defined for the 200 g-force, 4-minute extractor runs—which DOE testing indicates would be most closely associated with the spin portion of a baseline top-loading CCW wash cycle—are 43.1 percent for cloth that has been soaked in cold (60 °F) water, compared to 40.4 percent for cloth soaked in warm (100 °F) water—a difference of 2.7 RMC percentage points. For a typical CCW with capacity of 3.25 ft³ and the associated load sizes as defined by Table 5.1 of appendix J2, a reduction in RMC of 2.7 percentage points would

²⁰ As described in section 1 of appendix J3, the purpose of appendix J3 is to evaluate the moisture absorption and retention characteristics of a new lot of test cloth by measuring the RMC in a standard extractor at a specified set of conditions. The results are used to develop a set of coefficients that correlate the measured RMC values of the new test cloth lot with a set of standard RMC values established as an historical reference point. These correction coefficients are applied to the RMC measurements performed during testing according to appendix J1 or appendix J2, ensuring that the final corrected RMC measurement for a clothes washer remains independent of the test cloth lot used for testing.

²¹ The correction factors for each test cloth lot are applied to the RMC measurement for the purpose of ensuring repeatable RMC measurements among different lots of test cloth. As part of the test cloth qualification process, bundles of wet cloth are spun in a specialized extractor at various spin speeds (*i.e.*, gravitational or “g” forces), time durations, and water temperatures, with the RMC measured after each extractor run.

reduce the drying energy component by around 0.03 kWh/cycle (using the equations specified in sections 3.8 and 4.3 of appendix J2). For a rinse water volume of around 14 gal—which would be typical for a baseline top-loading CCW (see Table IV.6 of this document)—at an assumed warm rinse temperature of 100 °F (consistent with the temperature associated with the assumed RMC values), using a warm rinse would increase water heating energy by around 0.37 kWh/cycle (using the equations specified in sections 4.1.2 and 4.1.3 of appendix J2). In this example, the additional water-heating energy associated with a heated rinse (0.37 kWh/cycle) would far outweigh any efficiency improvement due to the reduced RMC from the heated rinse (0.03 kWh/cycle), on a per-cycle basis. For this reason, DOE has not considered warm rinse as a technology option for improving the efficiency of CCWs as measured by the DOE test procedure.

Regarding the referenced study that showed that a ribbed drum can improve RMC results,²² DOE reviewed the study and has identified areas of uncertainty that prevent DOE from including this technology at this time; specifically:

- It is unclear from the study whether the “percent RMC reduction” data represents reduction of “RMC percentage points” or percent reduction of the RMC value, which itself is a percentage; *e.g.*, reducing RMC from a value of 50 percent to 40 percent could be described as either a 10-percent reduction in RMC percentage points, or a 20-percent reduction in the RMC value.

²² Richter, Tim. Energy Efficiency Laundry Process. Prepared for U.S. DOE by GE Global Research. 2005. doi:10.2172/842014. Available at: www.osti.gov/servlets/purl/842014.

- No information is provided on the additional material or tooling costs that would be associated with manufacturing a ribbed stainless-steel basket. The report notes in section 3.3.8 that the stainless-steel prototype baskets (which used a double-basket design) worked well for testing but could not be used for mass production due to the inefficient use of materials.
- The report states in section 3.4 that the prototype ribbed basket showed increased susceptibility to “suds lock,” that none of the prototypes resulted in clear improvements in suds lock, and that most of the suds lock solutions were difficult to envision in a production application.

For these reasons, DOE did not include a ribbed drum design as a technology option in this NOPD.

Regarding the Joint Commenters’ recommendation to consider card readers that can allow for a discounted price for a cold cycle as a technology option, DOE considered temperature-differentiated pricing controls as a design option in the analysis accompanying the December 2014 Final Rule. In chapter 5 of the technical support document (“TSD”) accompanying the December 2014 Final Rule, DOE described that its market analysis confirmed the availability of this feature on multiple CCW models from multiple manufacturers.²³ As described in the TSD, DOE’s current test procedure at appendix J2 uses a fixed set of Temperature Use Factors (“TUFs”), which represent the percentage of time an end-user would select each wash/rinse temperature selection available on the clothes washer. Because the TUFs in the test procedure are fixed, a CCW with temperature-differentiated pricing controls would be tested the same way as

²³ The TSD for the December 2014 Final Rule is available at docket number EERE-2012-BT-STD-0020. Available online at www.regulations.gov/docket/EERE-2012-BT-STD-0020.

an identical CCW without temperature-differentiated pricing controls. Therefore, the energy savings of this technology cannot be measured according to the conditions and methods specified in the DOE clothes washer test procedure. Accordingly, DOE did not analyze this technology option in its December 2014 Final Rule analysis, and for these same reasons, DOE has not analyzed this as a technology option for the current analysis. The Joint Commenters did not provide, nor is DOE is aware of, any information regarding the extent to which temperature-differentiated pricing controls alter the end-user wash temperature selection frequencies.

In summary, for this analysis, DOE considered the technology options shown in Table IV.

Table IV.1 Commercial Clothes Washer Technology Options

Technology Option	Description
Adaptive water fill	Use of advanced control technologies to sense the size of the clothing load and adjust the water level accordingly. This technology option can overcome the tendency of consumers to manually select a water level greater than required for a given load.
Advanced agitation concepts for top-loading machines	Replaces the standard agitator found in traditional top-loading CCWs. The most common implementation of this technology is a rotating “impeller” wash plate at the bottom of the drum.
Capacity increase	Implementing a larger tub capacity can contribute to improved efficiency because a larger amount of clothing can be washed using an incremental increase in the quantity of water that is less than the incremental increase in capacity, therefore reducing the amount of water and energy per pound of clothing.
Higher spin speeds to reduce RMC	Faster spin speeds reduce RMC and thus the drying energy component of MEF_{J2} .
Motor efficiency improvements, including direct-drive motors	Replaces a single-speed or dual-speed capacitor-start induction motor and mechanical transmission.
Ozonated laundering	Consists of a separate wall-mounted unit that pumps ambient air through an ozone generator, which is then directly injected into the wash water. Once in the water, the ozone reacts with insoluble soils, making them soluble, after which the mechanical action of the washing separates the soils from the fabric.
Polymer bead cleaning	Uses the absorbent properties of nylon polymer beads which are added to the wash drum with a small amount of water and detergent to loosen the dirt or stains on the clothing. The polarity of the nylon polymer attracts stains from the clothing. At the end of the cycle, the polymer beads are separated from the clothing through an inner drum/outer drum rotation process.
Spray rinse or similar water-reducing rinse technology	Eliminates the need to completely immerse the clothing in water during the wash and rinse phases of the cleaning cycle by spraying rinse water into the drum while the wash basket is rotating.
Thermostatically controlled mixing valves	Inlet valves that have the ability to sense and adjust the hot and cold supply water. This technology option achieves energy savings by more accurately controlling inlet water temperature for hot and warm fills.
Water recirculation loop	Reduces the amount of water used by the CCW by re-using water out of the bottom of the sump during certain parts of the cycle.

C. Screening Analysis

DOE uses the following five screening criteria to determine which technology options are suitable for further consideration in an energy conservation standards rulemaking:

- (1) *Technological feasibility.* Technologies that are not incorporated in commercial products or in working prototypes will not be considered further.
- (2) *Practicability to manufacture, install, and service.* If it is determined that mass production and reliable installation and servicing of a technology in commercial products could not be achieved on the scale necessary to serve the relevant market at the time of the projected compliance date of the standard, then that technology will not be considered further.
- (3) *Impacts on equipment utility or equipment availability.* If it is determined that a technology would have significant adverse impact on the utility of the equipment to significant subgroups of consumers or would result in the unavailability of any covered equipment type with performance characteristics (including reliability), features, sizes, capacities, and volumes that are substantially the same as equipment generally available in the United States at the time, it will not be considered further.
- (4) *Adverse impacts on health or safety.* If it is determined that a technology would have significant adverse impacts on health or safety, it will not be considered further.
- (5) *Unique-Pathway Proprietary Technologies.* If a design option utilizes proprietary technology that represents a unique pathway to achieving a given efficiency level, that technology will not be considered further due to the potential for monopolistic concerns.

10 CFR 431.4; Sections 6(b)(3) and 7(b) of the Process Rule. In summary, if DOE determines that a technology, or a combination of technologies, fails to meet one or more of the listed five criteria, it will be excluded from further consideration in the engineering analysis.

AHAM and CLA commented that increasing cycle time in order to achieve higher levels of efficiency is not a viable option for increasing CCW efficiency. (AHAM and CLA, No. 5 at p. 2)²⁴ AHAM and CLA stated that end users of CCWs want to wash as much laundry as they can in as little time as possible, and that they also prefer to limit the number of loads or trips per week. *Id.* AHAM and CLA also asserted commercial laundry operators' need to maximize laundry throughput. *Id.*

AHAM and CLA also commented that DOE should consider CCW durability and serviceability in its analysis of whether to propose a determination not to amend energy conservation standards or to engage in a full rulemaking analysis to assess possible amended standards. *Id.* AHAM and CLA stated that CCW components need to be robust and durable enough to withstand the higher number and frequency of cycles anticipated for CCWs compared to domestic applications, and that some of the technology options employed in RCWs (*e.g.*, direct drive motors) may not be suitable for CCWs. *Id.* AHAM and CLA also stated that owner/operators require low machine down-time for malfunctions and repairs, which requires readily-available parts and easy serviceability. *Id.* AHAM and CLA further stated that for operators who have hundreds or thousands of machines, consistency of design and interchangeability of parts is also an important consideration. *Id.* AHAM and CLA asserted that more stringent energy

²⁴ Whirlpool and GEA commented that they support AHAM's comments on the July 2020 RFI and incorporate them into their own comments by reference. Throughout this NOPD, reference to AHAM's written comments (document number 5 in the docket) should be considered reflective of Whirlpool and GEA's positions as well. (Whirlpool, No. 3 at p. 1; GEA, No. 6 at p. 1)

conservation standards, depending on the level, could threaten the ability of manufacturers to use the same or similar parts, and could potentially increase service complexity and cost. *Id.*

AHAM and CLA recommended that DOE consider how changing water levels in order to increase efficiency could affect end user expectations. (AHAM and CLA, No. 5 at p. 3) According to AHAM and CLA, end users want to see what they believe is a sufficient amount of water to wash their clothes, and that even with current energy conservation standards, manufacturers sometimes hear complaints from consumers about the water levels. *Id.* AHAM and CLA stated that even if smaller load sizes needed to be recommended due to decreased water levels as a result of more stringent standards, users may still wash larger loads, particularly if the users perceive available capacity. *Id.*

AHAM and CLA commented that if it were necessary to further decrease wash temperatures to meet more stringent standards (which AHAM and CLA asserted would make it difficult to clean the clothes with today's detergents), the result would likely be decreased performance for the user and increased complaints to operators. *Id.* AHAM and CLA also stated that a further decrease in water temperatures may also lead to customers re-running their wash cycles, which would prevent the energy and water savings from amended standards from being fully realized. *Id.*

AHAM and CLA commented that while increasing drum volume is one of the key technology options for improving efficiency, the ability to increase capacity for CCWs is extremely limited. (AHAM and CLA, No. 5 at pp. 2–3) AHAM and CLA believe that it may not be possible to further increase the size of the drum to comply with more stringent standards without increasing the cabinet size. *Id.* AHAM and CLA commented

that operators need to maximize the return on capital across their base of machines, and they do this by having as many available CCWs as possible in their space. *Id.* AHAM and CLA stated that increasing the cabinet size would result in decreased revenues for commercial operators, since fewer CCWs could fit into the same space. *Id.* AHAM and CLA stated that increasing cabinet size would also result in retooling, which would significantly increase costs. *Id.* AHAM and CLA also commented that increased capacity could also reduce the number of wash loads, thereby resulting in lost revenue to owner/operators. *Id.*

Taking into considerations these comments, as well as previous research and analysis from the December 2014 Final Rule, DOE applied the screening criteria specified above to the technology options listed in Table IV.1 of this NOPD to either retain or eliminate each technology from the screening analysis. The rationale for either screening out or retaining each technology option considered in this analysis is detailed in the following sections.

1. Screened-Out Technologies

Based on DOE's research and consideration of comments received from interested parties, DOE screened out the technology options on the basis of the EPCA criteria shown in Table IV.2.

Table IV.2 Commercial Clothes Washer Screening Analysis

Technology Option	EPCA Criteria (X = Basis for Screening Out)				
	Technological Feasibility	Practicability to Install, Manufacture, and Service	Impacts on Equipment Utility or Equipment Availability	Adverse Impacts on Health or Safety	Unique-Pathway Proprietary Technologies
Capacity increase		X	X		
Higher spin speeds to reduce RMC			X		

Ozonated laundering		X			
Polymer bead cleaning		X			X

2. Remaining Technologies

After reviewing each technology, DOE did not screen out the following technology options and considers them as design options in the engineering analysis:

- 1) Adaptive water fill controls
- 2) Advance agitation concepts for top-loading machines
- 3) Motor efficiency improvements including direct-drive motors
- 4) Spray rinse or similar water-reducing rinse technology
- 5) Thermostatically controlled mixing valves
- 6) Water recirculation loop

DOE determined that these technology options are technologically feasible because they are being used in commercially available equipment or working prototypes. DOE also finds that all of the remaining technology options meet the other screening criteria (*i.e.*, practicable to manufacture, install, and service and do not result in adverse impacts on consumer utility, equipment availability, health, or safety).

D. Engineering Analysis

The purpose of the engineering analysis is to establish the relationship between the efficiency and cost of CCWs. There are two elements to consider in the engineering analysis; the selection of efficiency levels to analyze (*i.e.*, the “efficiency analysis”) and the determination of equipment cost at each efficiency level (*i.e.*, the “cost analysis”). In determining the performance of higher-efficiency equipment, DOE considers

technologies and design option combinations not eliminated by the screening analysis. For each equipment class, DOE estimates the baseline cost, as well as the incremental cost for the equipment at efficiency levels above the baseline. The output of the engineering analysis is a set of cost-efficiency “curves” that are used in downstream analyses. For this NOPD, DOE did not conduct the cost portion of the analysis, as discussed in section V.D of this document, having initially concluded that the maximum technologically feasible energy savings would not result in a significant conservation of energy.

DOE typically uses one of two approaches to develop energy efficiency levels for the engineering analysis: (1) relying on observed efficiency levels in the market (*i.e.*, the efficiency-level approach), or (2) determining the incremental efficiency improvements associated with incorporating specific design options to a baseline model (*i.e.*, the design-option approach). Using the efficiency-level approach, the efficiency levels established for the analysis are determined based on the market distribution of existing equipment (in other words, based on the range of efficiencies and efficiency level “clusters” that already exist on the market). Using the design option approach, the efficiency levels established for the analysis are determined through detailed engineering calculations and/or computer simulations of the efficiency improvements from implementing specific design options that have been identified in the technology assessment. DOE may also rely on a combination of these two approaches. For example, the efficiency-level approach (based on actual equipment on the market) may be extended using the design option approach to interpolate to define “gap fill” levels (to bridge large gaps between other identified efficiency levels) and/or to extrapolate to the “max-tech” level (particularly in cases where the “max tech” level exceeds the maximum efficiency level currently available on the market).

In this proposed determination, DOE is adopting an efficiency-level approach and based its efficiency levels on clusters observed in the market.

1. Baseline Efficiency

For each equipment class, DOE generally selects a baseline model as a reference point for each class, and measures changes resulting from potential energy conservation standards against the baseline. The baseline model in each equipment class represents the characteristics of equipment typical of that class (*e.g.*, capacity, physical size).

Generally, a baseline model is one that just meets current energy conservation standards, or, if no standards are in place, the baseline is typically the most common or least efficient unit on the market.

For this NOPD, DOE used the current energy conservation standards for CCWs, presented in Table IV.3, as the baseline efficiency level for each equipment class.

Table IV.3 Baseline Efficiency Levels

Equipment Class	Minimum MEF _{J2} <i>ft³/kWh/cycle</i>	Maximum IWF <i>gal/ft³/cycle</i>
Top-Loading	1.35	8.8
Front-Loading	2.00	4.1

2. Higher Efficiency Levels

As part of DOE's analysis, the maximum available efficiency level is the highest efficiency unit currently available on the market. DOE also defines a "max-tech" efficiency level to represent the maximum possible efficiency for a given equipment.

The CA IOUs recommended that DOE establish new max-tech standard levels based on up-to-date technical feasibility. (CA IOUs, No. 7 at pp. 3–5) The CA IOUs cited certification data provided in DOE's Compliance Certification Management System

(“CCMS”) database²⁵ (which they accessed on July 23, 2020) indicating that a large percentage of top-loading and front-loading CCWs meet or exceed the max-tech levels defined in the 2014 rulemaking analysis. *Id.*

The Joint Commenters commented that data on available models in DOE’s CCMS database indicates a significant potential to improve the efficiency of CCWs. (Joint Commenters, No. 4 at pp. 1–3) The Joint Commenters summarized data from the CCMS database (which they accessed on September 11, 2020) indicating a range of both top-loading and front-loading CCWs that meet or exceed the 2014 DOE max-tech levels. *Id.* The Joint Commenters concluded that these data indicate that there is significant potential to improve the efficiency of CCWs. *Id.*

NEEA commented that, based on its analysis of models in the CCMS database, improving the efficiency of all CCWs to the most efficient technologies available on the market could lead to site energy savings of 19 percent in active mode and an additional 2 percent in standby mode. (NEEA, No. 8 at pp. 2–3) NEEA stated that many technologies are available to cost-effectively reduce standby mode energy use. (NEEA, No. 8 at pp. 5–6) NEEA provided specific technology examples of improved light emitting diode (“LED”) efficacy, improved transformers, resonant switching, synchronous rectification, advanced core materials, and higher internal system voltage for low-voltage communication and control. *Id.*

DOE is aware that the CCMS database previously contained basic models of CCWs that appeared to have efficiency levels higher than the max-tech level described in

²⁵ The Department of Energy’s Compliance Certification Management System database for CCWs is available online at www.regulations.doe.gov/certification-data/CCMS-4-Clothes_Washers_-_Commercial.html#q=Product_Group_s%3A%22Clothes%20Washers%20-%20Commercial%22.

this document. At the time of publication of the July 2020 RFI, the CCMS database contained equipment ratings for certain CCW basic models that reflected MEF values as measured under appendix J1, in addition to equipment ratings for other CCW basic models that reflected MEF_{J2} values as measured under appendix J2.²⁶ As shown in the December 2014 Final Rule, for a given appendix J2 MEF_{J2} efficiency level, the equivalent appendix J1 MEF value is a substantively higher number. 79 FR 74492, 74499–74500. For this reason, basic models in CCMS that were rated using MEF appeared to be more efficient than basic models rated using MEF_{J2}, despite being equally or less efficient than the MEF_{J2}-rated basic models when tested equivalently. 79 FR 74492, 74499–74500. Since the July 2020 RFI, the CCMS database has been updated to include only basic models certified with MEF_{J2} values. For this analysis, DOE analyzed only basic models of CCWs rated using appendix J2 (*i.e.*, with MEF_{J2} values). At the time of this analysis, models rated using appendix J2 had MEF_{J2} values ranging from 1.35 to 1.60 for top-loading CCWs and from 2.00 to 2.30 for front-loading CCWs.

As noted, EPCA requires that any new or amended energy conservation standard be designed to achieve the maximum improvement in energy efficiency that is technologically feasible. (42 U.S.C. 6316(a); 42 U.S.C. 6295(o)(2)(A)) For this NOPD, DOE has considered the maximum possible efficiency to correspond to the maximum efficiency level currently available on the market for each equipment class. For CCWs, DOE is unable to conclude that theoretical efficiency levels higher than the maximum currently available on the market would represent commercially viable (*i.e.*, technologically feasible) equipment, because DOE is unable to determine the impact that theoretical higher efficiency levels would have on consumer-relevant aspects of

²⁶ DOE understands that certain basic models rated using appendix J1 MEF values are still in inventory and being sold, but were manufactured prior to January 1, 2018. The current CCW energy conservation standards based on MEF_{J2} apply to all CCWs manufactured in, or imported into, the United States on or after January 1, 2018. 79 FR 74492, 74493.

equipment performance²⁷ (such as cleaning performance, cycle time, *etc.*) and equipment reliability.²⁸

For this NOPD, DOE considered the efficiency levels listed in Table IV.4.

Table IV.4 Efficiency Levels Considered for Commercial Clothes Washers

Equipment Class	Efficiency Level	Minimum MEF _{J2} (ft ³ /kWh/cycle)	Maximum IWF (gal/cycle/ft ³)
Top-Loading	Baseline	1.35	8.80
	1	1.60	8.50
	2	1.60	7.80
	3 (Max Tech)	1.60	5.50
Front-Loading	Baseline	2.00	4.10
	1	2.20	4.00
	2 (Max Tech)	2.30	3.80

E. Energy and Water Use Analysis

The purpose of the energy and water use analysis is to determine the annual energy and water consumption of CCWs at different efficiencies in representative U.S. multi-family residences and commercial coin-operated laundromats, and to assess the energy and water savings potential of increased CCW efficiency. The energy and water use analysis estimates the range of energy and water use of CCWs in the field (*i.e.*, as they are actually used by consumers). The energy and water use analysis provides the basis for other analyses DOE performed, particularly assessments of the energy and water savings that could result from adoption of amended or new standards.

The energy analysis for this NOPD consists of three related parts – the machine energy use, the drying energy use, and the water-heating energy use. DOE used relevant

²⁷ As an extreme example, DOE could assume that a CCW could reduce its water consumption to near zero, but such equipment would not be viable for washing clothing.

²⁸ As an example, DOE could assume that a CCW could implement significantly faster spin speeds, but at the risk of more frequent or severe damage to internal bearings, requiring more frequent repairs or replacement.

data from the December 2014 Final Rule TSD and product literature for CCWs currently available on the market to estimate the per-cycle machine and drying energy use that would be associated with each efficiency level as measured by the appendix J2 test procedure.²⁹ To determine the per-cycle water-heating energy use, DOE first determined the total per-cycle energy use (the clothes container volume divided by the MEF_{J2}) and then subtracted it from the per-cycle drying and machine energy use. DOE determined per-cycle water consumption by multiplying the IWF by the defined capacity.

The per-cycle energy and water use for top-loading and front-loading CCWs associated with each efficiency level are presented in Table IV.5 and Table IV.6, respectively.

Table IV.5 Per-Cycle Energy and Water Use for Top-Loading Commercial Clothes Washers

Efficiency Level	MEF_{J2} ($ft^3/kWh/cycle$)	IWF ($gal/ft^3/cycle$)	Capacity (ft^3)	RMC (%)	Energy Breakdown ($kWh/cycle$)			Water Consumption ($gal/cycle$)
					Machine	Hot Water	Drying	
Baseline	1.35	8.8	3.25	48%	0.21	0.59	1.61	28.6
EL 1	1.60	8.5	3.25	47%	0.10	0.36	1.57	27.6
EL 2	1.60	7.8	3.25	47%	0.10	0.36	1.57	25.4
EL 3 (Max Tech)	1.60	5.5	3.25	47%	0.10	0.36	1.57	17.9

Table IV.6 Per-Cycle Energy and Water Use for Front-Loading Commercial Clothes Washers

Efficiency Level	MEF_{J2} ($ft^3/kWh/cycle$)	IWF ($gal/ft^3/cycle$)	Capacity (ft^3)	RMC (%)	Energy Breakdown ($kWh/cycle$)			Water Consumption ($gal/cycle$)
					Machine	Hot Water	Drying	
Baseline	2.00	4.1	3.25	38%	0.10	0.28	1.24	13.4
EL 1	2.20	4.0	3.25	36%	0.10	0.21	1.17	13.0
EL 2 (Max Tech)	2.30	3.8	3.25	34%	0.10	0.21	1.10	12.4

²⁹ The TSD for the December 2014 Final Rule is available at docket number EERE-2012-BT-STD-0020. Available online at www.regulations.gov/docket/EERE-2012-BT-STD-0020.

DOE determined the average annual energy and water consumption by multiplying the per-cycle energy and water consumption by the number of cycles per year. For this NOPD, DOE relied on the same research studies as described in chapter 7 of the December 2014 Final Rule TSD to arrive at a range of annual usage cycles. The average values are 1,083 and 1,479 for multi-family and laundromat applications, respectively. The data sources that informed these usage numbers include Multi-Housing Laundry Association (“MLA”) and the CLA, Southern California Edison, and San Diego Gas and Electric, as well as research sponsored by the MLA and the CLA. Chapter 7 of the December 2014 Final Rule TSD describes these sources in detail.³⁰ DOE is not aware of more recent studies that provide additional data on the average cycles for the considered applications.

Table IV.7 summarizes the average annual energy and water consumption for CCWs.

Table IV.7 Average Annual Energy and Water Use for Commercial Clothes Washers

Equipment Class	Efficiency Level	MEF (ft ³ /kWh/cycle)	IMF (gal/cycle/ft ³)	Container Volume (ft ³)	RMC (%)	Annual Energy Use		Annual Water (1000 gal)
						Electrical (kWh/yr)	Gas (MMBtu/yr)	
Top-Loading	Baseline	1.35	8.80	3.25	48%	961	7.05	32.47
	1	1.60	8.50	3.25	47%	752	6.04	31.36
	2	1.60	7.80	3.25	47%	752	6.04	28.78
	3 (Max Tech)	1.60	5.50	3.25	47%	752	6.04	20.29
Front-Loading	Baseline	2.00	4.10	3.25	38%	618	4.77	15.24
	1	2.20	4.00	3.25	36%	573	4.26	14.76
	2 (Max Tech)	2.30	3.80	3.25	35%	546	4.08	14.02

³⁰ The TSD for the December 2014 Final Rule is available at docket number EERE-2012-BT-STD-0020. Available online at www.regulations.gov/docket/EERE-2012-BT-STD-0020.

NEEA encouraged DOE to quantify the energy and water use and savings of CCWs installed in on-premise laundries (“OPLs”). (NEEA, No. 8 at p. 8) NEEA stated that some CCWs covered by DOE’s current definition are installed as non-vending OPL units in facilities such as spas, hair salons, assisted living centers, and fire stations, and used for laundering various textiles (*e.g.*, towels, sheets, and uniforms). *Id.* NEEA cited the 2014 Final Rule, in which DOE did not evaluate the energy and water use and savings of equipment installed in OPLs due to a lack of data. *Id.* NEEA noted that since 2014, the California Energy Commission (“CEC”) has published data on the installed stock and duty cycle of OPL clothes dryers, which NEEA asserts can be assumed to be similar to clothes washers in the same facility. *Id.* Citing the CEC research, NEEA stated that the number of OPL CCWs installed is smaller than the total number of CCWs in multi-family laundries and laundromats, but that the number of cycles per day in an OPL is much higher than in multi-family laundries or laundromats. *Id.*

DOE reviewed CEC’s 2017 study³¹ and found the scope of the study is only focused on OPL applications in the state of California. DOE acknowledges the benefit of including the number of cycles per day from OPL application; however, a larger study with greater geographic area would be more applicable, as it would be more representative as to the variability in annual energy and water consumption in different applications.

The CA IOUs recommended that DOE investigate the prevalence of larger-capacity units used in multi-housing laundries and OPL facilities, such as in hotels, health

³¹ TRC Energy Services, On-Premises Laundromat Dryers Market Survey, Docket Number: 17-AAER-01 (TN#:216326), 03/02/2017. efiling.energy.ca.gov/Lists/DocketLog.aspx?docketnumber=17-AAER-01.

care, universities, and prisons. (CA IOUs, No. 7 at pp. 2–3) The CA IOUs stated that these represent significant segments of the CCW market, and cited a 2009 DOE report on commercial building appliances that estimated 300,000 to 600,000 multi-housing laundries and 60,000 OPL facilities in the United States, compared to 35,000 laundromats. *Id.*

DOE acknowledges the trend and presence of larger-capacity units in multi-housing laundry and OPL facilities in hotels, healthcare establishments and universities. Since larger-capacity units are outside the scope for this NOPD, DOE focused its analysis on CCW units that meet the criteria of horizontal-axis clothes washers not more than 3.5 ft³ in volume and vertical-axis clothes washers not more than 4.0 ft³ in volume.

F. Shipments Analysis

DOE uses projections of annual equipment shipments between 2024 and 2053 to calculate the national energy and water savings of potential amended or new energy conservation standards on energy and water use.³² The shipments model takes an accounting approach in tracking market shares of each equipment class and the vintage of units in the stock. Stock accounting uses equipment shipments as inputs to estimate the age distribution of in-service equipment stocks for all years. The age distribution of in-service equipment stocks is a key input to calculations of both the NES and national water savings (“NWS”).

³² DOE uses data on manufacturer shipments as a proxy for national sales, as aggregate data on sales are lacking. In general, one would expect a close correspondence between shipments and sales.

For this NOPD, DOE used the same shipments model that was performed for the December 2014 Final Rule.³³ DOE used historical shipments data to calibrate its shipments model. The historical shipments data were established using the following sources: (1) ENERGY STAR clothes washer shipments in commercial use applications for the period 2014–2019³⁴ and (2) data from the December 2014 Final Rule for the period 1972–2013. DOE projected CCW shipments (for both equipment classes) for the new construction and replacement markets, and also accounted for non-replacement of retired units. For the new construction market, DOE assumed shipments are driven solely by multi-family construction starts, using projections of new housing starts from the DOE Energy Information Administration (“EIA”) *Annual Energy Outlook* (“AEO”) 2021.³⁵ Implicit in this assumption is the fact that a certain percentage of multi-family residents will need to wash their laundry in either a common-area laundry facility (within the multi-family building) or a laundromat.

For existing buildings replacing broken equipment, the shipments model uses a stock accounting framework. Given the equipment entering the stock in each year and a retirement function, the model predicts how many units reach the end of their lifetime in each year. DOE typically refers to new shipments intended to replace retired units as “replacement” shipments. Such shipments are usually the largest part of total shipments.

³³ The shipments model performed for the December 2014 Final Rule can be found in the TSD at docket number EERE-2012-BT-STD-0020. Available online at www.regulations.gov/document/EERE-2012-BT-STD-0020-0017.

³⁴ ENERGY STAR: *ENERGY STAR Unit Shipment and Market Penetration Report Calendar Year 2014-2019 Summary*. www.energystar.gov/sites/default/files/asset/document/2019%20Unit%20Shipment%20Data%20Summary%20Report.pdf.

³⁵ U.S. Department of Energy-Energy Information Administration. *Annual Energy Outlook 2021 with Projections to 2050*, February 3, 2021. Washington, DC. DOE/EIA-0383(2021). www.eia.gov/outlooks/aeo/.

DOE allocated shipments to each of the two equipment classes based on the current market share of each class. Based on ENERGY STAR 2019 shipments data, DOE estimated that top-loading CCWs comprise 66 percent of the market while front-loading CCWs comprise 34 percent. DOE implemented frozen market share for the projection period (2024–2053) for both the no-new-standards case and potential efficiency standards levels.

To estimate shipments under potential efficiency standards levels, DOE applied a default price elasticity of demand of zero for this equipment because DOE believes CCWs to be highly price-inelastic, meaning that any cost and price increases resulting from efficiency standards are unlikely to substantially affect the quantity of CCWs purchased.

G. National Energy and Water Savings Analysis

The national energy and water savings (“NEWS”) analysis assesses the NES and the NWS from a national perspective of total consumer savings that would be expected to result from new or amended standards at specific efficiency levels.³⁶ (“Consumer” in this context refers to consumers of the equipment being regulated.) DOE calculates the NES and NWS for the potential standards levels considered based on projections of annual equipment shipments, along with the annual energy and water consumption from the energy and water use analysis. For the present analysis, DOE projected the energy and water savings over the lifetime of CCWs sold from 2024 through 2053.

DOE evaluates the effects of new or amended standards by comparing a case without such standards with standards-case projections. The no-new-standards case

³⁶ The NIA accounts for impacts in the 50 states and Washington D.C.

characterizes energy and water use for each equipment class in the absence of new or amended energy conservation standards. For this projection, DOE considers historical trends in efficiency and various forces that are likely to affect the mix of efficiencies over time. DOE compares the no-new-standards case with projections characterizing the market for each equipment class if DOE adopted new or amended standards at specific efficiency levels (*i.e.*, the ELs or standards cases) for that class. For the standards cases, DOE considers how a given standard would likely affect the market shares of equipment with efficiencies greater than the standard.

Table IV.8 summarizes the inputs and methods DOE used for the NEWS analysis for the NOPD. Discussion of these inputs and methods follows the table.

Table IV.8 Summary of Inputs and Methods for the National Energy and Water Savings Analysis

Inputs	Method
Shipments	Annual shipments from shipments model.
Modeled Compliance Date of Standard	2024
Efficiency Trends	No-new-standards case: Based on current market distribution of efficiencies with a zero growth in efficiency scenario for the analysis period. Standards cases: Based on a “roll-up” scenario to roll-up units to meet the standard level.
Annual Energy and water Consumption per Unit	Annual weighted-average values are a function of energy and water use at each EL.
Energy Site-to-Primary and Full Fuel Cycle Conversion	A time-series conversion factor based on AEO 2021.
Discount Rate	3 percent and 7 percent

1. Equipment Efficiency Trends

A key component of the NEWS analysis is the trend in energy efficiency projected for the no-new-standards case and each of the standards cases.

DOE estimated the current energy and water efficiency distribution for CCWs using model counts from DOE’s CCMS database.³⁷ The estimated market shares for the no-new-standards case for CCWs are shown in Table IV.9.

Table IV.9 Efficiency Distributions: No-New-Standards Case Market Shares in 2020

Top-Loading				Front-Loading			
Efficiency Level	MEF _{J2} (ft ³ /kWh/cyc)	IWF (gal/cyc/ft ³)	Market Share (%)	Efficiency Level	MEF _{J2} (ft ³ /kWh/cyc)	IWF (gal/cyc/ft ³)	Market Share (%)
Baseline	1.35	8.8	40.9%	Baseline	2.00	4.1	1.9%
1	1.60	8.5	4.5%	1	2.20	4.0	89.7%
2	1.60	7.8	40.9%	2 (Max Tech)	2.30	3.8	8.4%
3 (Max Tech)	1.60	5.5	13.6%				

To project the future efficiency trend under the no-new-standards case during the analysis period, DOE followed the same methodology developed for the December 2014 Final Rule and assumed that efficiency would remain constant at the 2020 levels.³⁸

For the standards cases, DOE used a “roll-up” scenario to establish the shipment-weighted efficiency for the year that standards are assumed to become effective (2024). In this scenario, the market shares of equipment in the no-new-standards case that do not meet the standard under consideration would “roll up” to meet the new standard level, and the market share of equipment above the standard would remain unchanged. In the standards cases, the efficiency distribution remains constant at the 2020 levels for the analysis period.

³⁷ U.S. Department of Energy, Compliance Certification Database, Last accessed July, 2021. www.regulations.doe.gov/certification-data/#q=Product_Group_s%3A*.

³⁸ DOE’s methodology developed for the December 2014 Final Rule can be found in the TSD available at docket number EERE-2012-BT-STD-0020. Available online at www.regulations.gov/document/EERE-2012-BT-STD-0020-0017.

2. National Energy and Water Savings

The NEWS analysis involves a comparison of national energy and water consumption of the considered equipment between each potential standards case (*i.e.*, EL) and the case with no new or amended energy conservation standards. DOE calculated the national energy and water consumption by multiplying the number of units (stock) of each equipment (by vintage or age) by the unit energy and water consumption (also by vintage). DOE calculated annual NES and NWS based on the difference in national energy and water consumption for the no-new-standards case and for each higher efficiency standards case. DOE estimated energy consumption and savings based on site energy and converted the electricity consumption and savings to primary energy (*i.e.*, the energy consumed by power plants to generate site electricity) using annual conversion factors derived from AEO 2021. Cumulative energy and water savings are the sum of the NES and NWS for each year over the timeframe of the analysis.

In 2011, in response to the recommendations of a committee on “Point-of-Use and Full-Fuel-Cycle Measurement Approaches to Energy Efficiency Standards” appointed by the National Academy of Sciences, DOE announced its intention to use FFC measures of energy use and greenhouse gas and other emissions in the NIA and emissions analyses included in future energy conservation standards rulemakings. 76 FR 51281 (Aug. 18, 2011). After evaluating the approaches discussed in the August 18, 2011 notice, DOE published a statement of amended policy in which DOE explained its determination that EIA’s National Energy Modeling System (“NEMS”) is the most appropriate tool for its FFC analysis and its intention to use NEMS for that purpose. 77 FR 49701 (Aug. 17, 2012). NEMS is a public domain, multi-sector, partial

equilibrium model of the U.S. energy sector³⁹ that EIA uses to prepare its AEO. The FFC factors incorporate losses in production, and delivery in the case of natural gas (including fugitive emissions) and additional energy used to produce and deliver the various fuels used by power plants.

For this NOPD analysis, DOE reports the FFC energy savings in its NES analysis using inputs from AEO 2021.

H. Further Considerations

In addition to the analysis conducted as required under the 6-year look-back (42 U.S.C. 6316(a); 42 U.S.C. 6395(m)(1)(A)), DOE considered the estimated impacts of amended energy conservation standards on manufacturers of CCWs.

DOE conducted a manufacturer impact analysis for the December 2014 Final Rule. DOE understands that key characterizations and conclusions from that analysis to still be relevant to the CCW industry. Notably, two manufacturers continue to hold over 90 percent of the market share for the covered equipment. The smaller manufacturer, with annual revenues of approximately \$570 million, is a low-volume manufacturer (“LVM”) that specializes in CCWs. The larger manufacturer, with annual revenues of \$19 billion, is a diversified appliance manufacturer that produces a range of kitchen and laundry appliances.

In the December 2014 Final Rule, DOE raised concerns about disproportionate impacts between the LVM and the larger manufacturer. In particular, the LVM produced clothes washers at volumes that were two orders of magnitude smaller than its major

³⁹ For more information on NEMS, refer to *The National Energy Modeling System: An Overview 2009*, DOE/EIA-0581(2009), October 2009. Available at [www.eia.gov/analysis/pdftpages/0581\(2009\)index.php](http://www.eia.gov/analysis/pdftpages/0581(2009)index.php).

competitor. The opportunity for the LVM to recoup upfront investments in product development was substantially smaller than its competitor. Similarly, depreciated manufacturing capital could only be spread across a disproportionately lower volume of shipments, contributing to higher per-unit production costs. In particular, an increase in amended standards beyond the finalized energy conservation standard levels (*i.e.*, the current standards for CCWs) for top-loading units had the potential for strong disproportionate impacts, with the potential for the LVM to leave the market. 79 FR 74492, 74514, 74516, 74527–74528, 74535.

In reviewing the current industry, DOE finds that the conditions described in the December 2014 Final Rule continue to persist. The smaller manufacturer continues to be a LVM with production volumes of clothes washers that are at least an order of magnitude smaller than for the primary competitor. The LVM continues to sell top-loading CCWs only at the baseline efficiency level, and top-loading CCWs continue to represent the large majority of the market for CCWs. The results of NES and NWS analyses, summarized in Table V.2 in section V.C of this document, indicate that the top-loading CCW equipment class provides significantly greater potential energy and water savings opportunity than the front-loading CCW equipment class. A change in standards for the top-loading equipment class would require product investments and capital expenditures that disproportionately impact the LVM, which operates at lower production volumes, procures components in smaller quantities, and has less access to capital than the large, more diversified competitor.

NEEA commented that updating the CCW standard would likely benefit small business owners and low-income consumers. NEEA commented that households that use a centralized laundry facility are more likely to be low-income than those that maintain

an RCW within their dwelling. NEEA also commented that high utility costs impact rates charged to users of laundromats and multi-family laundries, leading to higher per-cycle cost to wash a load. (NEEA, No. 8 at p. 7).

DOE acknowledges that amending the CCW standards could benefit consumers, including small business owners and low-income consumers. DOE has not, however, conducted a consumer impacts analysis for the present rulemaking because it has tentatively determined that significant and disproportionate impacts to the LVM would outweigh the benefits of more stringent standards with respect to national energy and water savings (see section V.F of this document).

V. Conclusions

The following section addresses the results from DOE's analyses with respect to the considered energy conservation standards for CCWs. It addresses the efficiency levels examined by DOE and the projected impacts of each of these levels.

A. General Comments from Interested Parties

AHAM and CLA stated that amended energy standards for CCWs are not justified and are skeptical that amended standards for CCWs would meet the threshold for significant energy savings in the Process Rule. (AHAM and CLA, No. 5 at pp. 1–2) AHAM and CLA commented that it is not clear that an amended energy standard would be technologically feasible or economically justified—especially given the design challenges in further improving energy efficiency in clothes washers. (AHAM and CLA, No. 5 at p. 3) AHAM and CLA stated that the priorities identified within the Department's Regulatory Agenda represent a greater opportunity for improvements,

better allocation of DOE and stakeholder resources, and are most likely to confer substantial benefits to consumers and the nation. *Id.*

Whirlpool commented that DOE should issue a no-new-standards determination for CCWs. (Whirlpool, No. 3 at p. 1) Whirlpool stated that amended energy conservation standards would not be economically justified due to the challenges of further increasing efficiency (including owner and operator needs, durability requirements, capacity, water levels, and cycle length). *Id.* Whirlpool further commented that it does not believe that amended energy conservation standards would provide an additional 0.3 quads of site energy savings or an additional 10-percent reduction in site energy use over a 30-year period. *Id.* Whirlpool stated that the industry is heavily weighted towards top-loading CCW shipments, and that achieving an additional 10-percent reduction in site energy use will not be technologically feasible or cost effective. For these reasons, Whirlpool concludes that DOE should propose a no-new-standards determination. *Id.*

GEA suggested that DOE should issue a no-new-standards determination for CCWs because market and technology conditions have not changed since the most recent rulemakings for CCWs, as shown in the early assessment RFI. (GEA, No. 6 at p. 2)

The following sections summarize DOE's preliminary conclusions regarding technological feasibility, energy savings potential, cost-effectiveness, and further considerations regarding potential amended standards for CCWs.

B. Technological Feasibility

EPCA mandates that DOE consider whether amended energy conservation standards for CCWs would be technologically feasible. (42 U.S.C. 6316(a); 42 U.S.C.

6295(m)(1)(A) and 42 U.S.C. 6295(n)(2)(B)) DOE has tentatively determined that there are technology options that would improve the efficiency of CCWs. These technology options are being used in commercially available CCWs and therefore are technologically feasible. (See section IV.C.2 of this document for further information.) Hence, DOE has tentatively determined that amended energy conservation standards for CCWs are technologically feasible.

C. Significant Conservation of Energy

EPCA also mandates that DOE consider whether amended energy conservation standards for CCWs would result in significant conservation of energy. (42 U.S.C. 6316(a); 42 U.S.C. 6295(m)(1)(A) and 42 U.S.C. 6295(n)(2)(A))

To estimate the energy and water savings attributable to potential amended standards for CCWs, DOE compared their energy and water consumption under the no-new-standards case to their anticipated energy consumption under each potential standard level (“PSLs”). The savings are measured over the entire lifetime of equipment purchased in the 30-year period that begins in the year of anticipated compliance with amended standards (2024–2053).

DOE analyzed the energy and water savings of three PSLs for CCWs (see Table V.1). The PSLs were derived from the efficiency levels for CCWs that DOE developed in the engineering analysis. For this NOPD, PSL 1 represents the efficiency level above the baseline for both equipment classes. PSL 2 is configured with EL 2 for top-loading CCWs and the max-tech level (EL 2) for front-loading CCWs. PSL 3 represents the max-tech level for both equipment classes.

Table V.1 Potential Standard Levels for CCWs

PSL	Top-Loading			Front-Loading		
	Efficiency Level	MEF _{J2} (ft ³ /kWh/cycle)	IWF (gal/cycle/ft ³)	Efficiency Level	MEF _{J2} (ft ³ /kWh/cycle)	IWF (gal/cycle/ft ³)
1	1	1.60	8.50	1	2.20	4.00
2	2	1.60	7.80	2 (Max Tech)	2.30	3.80
3	3 (Max Tech)	1.60	5.50	2 (Max Tech)	2.30	3.80

Table V.2 presents DOE’s projections of the NES and NWS for each PSL considered for CCWs.

Table V.2 Cumulative National Energy and Water Savings for Commercial Clothes Washers (2024-2053)

Energy and Water Savings	Product Class	Potential Standard Level		
		1	2	3
Site energy savings (<i>quads</i>)	Front-Loading	0.00	0.01	0.01
	Top-Loading	0.03	0.03	0.03
	Total	0.03	0.04	0.04
Primary energy savings (<i>quads</i>)	Front-Loading	0.00	0.01	0.01
	Top-Loading	0.05	0.05	0.05
	Total	0.05	0.06	0.06
FFC energy savings (<i>quads</i>)	Front-Loading	0.00	0.01	0.01
	Top-Loading	0.05	0.05	0.05
	Total	0.06	0.06	0.06
Water savings (<i>trillion gallons</i>)	Front-Loading	0.00	0.02	0.02
	Top-Loading	0.02	0.07	0.39
	Total	0.02	0.09	0.41

DOE estimates that amended standards for CCWs would result in energy savings of 0.06 quads at PSL 3, the max-tech level.

D. Cost-Effectiveness

DOE analysis tentatively indicates that the market and the manufacturer circumstances are similar to those found when DOE last evaluated amended energy conservation standards for CCWs during the December 2014 Final Rule. In particular, the product offerings and technology options and associated costs have not changed substantively since the previous analysis. As stated and as described further in the

following sections, DOE has tentatively determined that amended standards for CCWs would not be economically justified at levels above the current standard level because the benefits of more stringent standards would not outweigh the burdens.

E. Further Considerations

In the December 2014 Final Rule, DOE rejected higher standards, finding that an increase in standards beyond the adopted level would lead to disproportionate impacts on the LVM. 79 FR 74492, 74535. The LVM primarily sold top-loading CCWs and produced those units only at the baseline efficiency level. The company's production volume of CCWs was significantly lower than its major competitor's production volume. An increase in standards to max-tech would have required significant investment by the LVM, with the potential need for "greenfield" factories or a change in business model that relies on sourcing or foreign production. *Id.* at 79 FR 74527. In contrast, the LVM's major competitor was orders of magnitude larger in terms of head count, revenue, and product shipments. The major competitor already produced units at the max-tech level for top-loading units. Thus, for the major competitor, there was no conversion cost burden associated with higher standards.

F. Summary

DOE has tentatively determined that energy conservation standards for CCWs do not need to be amended.

DOE rejected higher TSLs during the previous CCW energy conservation standards rulemaking due to significant and disproportionate impacts to the LVM, which has large market share in the CCW industry. DOE analysis indicates that the market and the manufacturer circumstances are similar to those found when DOE last evaluated

amended energy conservation standards for CCWs during the December 2014 Final Rule. In particular, the product offerings and technology options and associated costs have not changed substantively since the previous analysis. As such, DOE believes that amended energy conservation standards for CCWs would not be economically justified at levels above the current standard level because the benefits of more stringent standards would not outweigh the burdens. Therefore, DOE has tentatively determined not to amend the CCW energy conservation standards.

DOE will consider all comments received on this proposed determination in issuing any final determination.

VI. Procedural Issues and Regulatory Review

A. Review Under Executive Order 12866

This proposed determination has been determined to be not significant for purposes of Executive Order (“E.O.”) 12866, “Regulatory Planning and Review,” 58 FR 51735 (Oct. 4, 1993). As a result, the Office of Management and Budget (“OMB”) did not review this proposed determination.

B. Review Under the Regulatory Flexibility Act

The Regulatory Flexibility Act (5 U.S.C. 601 *et seq.*) requires preparation of an initial regulatory flexibility analysis (“IRFA”) for any rule that by law must be proposed for public comment, unless the agency certifies that the rule, if promulgated, will not have a significant economic impact on a substantial number of small entities. As required by E.O. 13272, “Proper Consideration of Small Entities in Agency Rulemaking,” 67 FR 53461 (Aug. 16, 2002), DOE published procedures and policies on February 19, 2003, to ensure that the potential impacts of its rules on small entities are

properly considered during the rulemaking process. 68 FR 7990. DOE has made its procedures and policies available on the Office of the General Counsel's website (www.energy.gov/gc/office-general-counsel).

DOE reviewed this proposed determination under the provisions of the Regulatory Flexibility Act and the policies and procedures published on February 19, 2003. DOE has tentatively determined that current standards for CCWs do not need to be amended. Because DOE is proposing not to amend standards for CCWs, if adopted, this determination would not amend any energy conservation standards. On the basis of the foregoing, DOE certifies that the proposed determination, if adopted, would have no significant economic impact on a substantial number of small entities. Accordingly, DOE has not prepared an IRFA for this proposed determination. DOE will transmit this certification and supporting statement of factual basis to the Chief Counsel for Advocacy of the Small Business Administration for review under 5 U.S.C. 605(b).

C. Review Under the Paperwork Reduction Act

Manufacturers of CCWs must certify to DOE that their equipment comply with any applicable energy conservation standards. To certify compliance, manufacturers must first obtain test data for their equipment according to the DOE test procedures, including any amendments adopted for those test procedures. DOE has established regulations for the certification and recordkeeping requirements for all covered consumer products and commercial equipment, including CCWs. (*See generally* 10 CFR part 429.) The collection-of-information requirement for the certification and recordkeeping is subject to review and approval by OMB under the Paperwork Reduction Act ("PRA"). This requirement has been approved by OMB under OMB control number 1910-1400. Public reporting burden for the certification is estimated to average 35 hours per

response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

DOE has tentatively determined that current standards for CCWs do not need to be amended. This proposed determination, if made final, would not impact the reporting burden approved under OMB control number 1910-1400.

Notwithstanding any other provision of the law, no person is required to respond to, nor shall any person be subject to a penalty for failure to comply with, a collection of information subject to the requirements of the PRA, unless that collection of information displays a currently valid OMB Control Number.

D. Review Under the National Environmental Policy Act of 1969

DOE is analyzing this proposed action in accordance with the National Environmental Policy Act of 1969 (“NEPA”) and DOE’s NEPA implementing regulations (10 CFR part 1021). DOE’s regulations include a categorical exclusion for actions which are interpretations or rulings with respect to existing regulations. 10 CFR part 1021, subpart D, appendix A4. DOE anticipates that this action qualifies for categorical exclusion A4 because it is an interpretation or ruling in regards to an existing regulation and otherwise meets the requirements for application of a categorical exclusion. See 10 CFR 1021.410. DOE will complete its NEPA review before issuing the final action.

E. Review Under Executive Order 13132

E.O. 13132, “Federalism,” 64 FR 43255 (Aug. 10, 1999), imposes certain requirements on Federal agencies formulating and implementing policies or regulations

that preempt State law or that have federalism implications. The Executive order requires agencies to examine the constitutional and statutory authority supporting any action that would limit the policymaking discretion of the States and to carefully assess the necessity for such actions. The Executive order also requires agencies to have an accountable process to ensure meaningful and timely input by State and local officials in the development of regulatory policies that have Federalism implications. On March 14, 2000, DOE published a statement of policy describing the intergovernmental consultation process it will follow in the development of such regulations. 65 FR 13735. DOE has examined this proposed determination and has tentatively determined that it would not have a substantial direct effect on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government. EPCA governs and prescribes Federal preemption of State regulations as to energy conservation for the equipment that are the subject of this proposed rule. States can petition DOE for exemption from such preemption to the extent, and based on criteria, set forth in EPCA. (*See* 42 U.S.C. 6316(a) and (b); 42 U.S.C. 6297) Therefore, no further action is required by E.O. 13132.

F. Review Under Executive Order 12988

With respect to the review of existing regulations and the promulgation of new regulations, section 3(a) of E.O. 12988, “Civil Justice Reform,” imposes on Federal agencies the general duty to adhere to the following requirements: (1) eliminate drafting errors and ambiguity, (2) write regulations to minimize litigation, (3) provide a clear legal standard for affected conduct rather than a general standard, and (4) promote simplification and burden reduction. 61 FR 4729 (Feb. 7, 1996). Regarding the review required by section 3(a), section 3(b) of E.O. 12988 specifically requires that executive agencies make every reasonable effort to ensure that the regulation: (1) clearly specifies

the preemptive effect, if any, (2) clearly specifies any effect on existing Federal law or regulation, (3) provides a clear legal standard for affected conduct while promoting simplification and burden reduction, (4) specifies the retroactive effect, if any, (5) adequately defines key terms, and (6) addresses other important issues affecting clarity and general draftsmanship under any guidelines issued by the Attorney General. Section 3(c) of Executive Order 12988 requires Executive agencies to review regulations in light of applicable standards in section 3(a) and section 3(b) to determine whether they are met or it is unreasonable to meet one or more of them. DOE has completed the required review and determined that, to the extent permitted by law, this proposed determination meets the relevant standards of E.O. 12988.

G. Review Under the Unfunded Mandates Reform Act of 1995

Title II of the Unfunded Mandates Reform Act of 1995 (“UMRA”) requires each Federal agency to assess the effects of Federal regulatory actions on State, local, and Tribal governments and the private sector. Pub. L. 104-4, sec. 201 (codified at 2 U.S.C. 1531). For a proposed regulatory action likely to result in a rule that may cause the expenditure by State, local, and Tribal governments, in the aggregate, or by the private sector of \$100 million or more in any one year (adjusted annually for inflation), section 202 of UMRA requires a Federal agency to publish a written statement that estimates the resulting costs, benefits, and other effects on the national economy. (2 U.S.C. 1532(a), (b)) The UMRA also requires a Federal agency to develop an effective process to permit timely input by elected officers of State, local, and Tribal governments on a proposed “significant intergovernmental mandate,” and requires an agency plan for giving notice and opportunity for timely input to potentially affected small governments before establishing any requirements that might significantly or uniquely affect them. On March 18, 1997, DOE published a statement of policy on its process for intergovernmental

consultation under UMRA. 62 FR 12820. DOE's policy statement is also available at https://energy.gov/sites/prod/files/gcprod/documents/umra_97.pdf.

DOE examined this proposed determination according to UMRA and its statement of policy and determined that the proposed determination does not contain a Federal intergovernmental mandate, nor is it expected to require expenditures of \$100 million or more in any one year by State, local, and Tribal governments, in the aggregate, or by the private sector. As a result, the analytical requirements of UMRA do not apply.

H. Review Under the Treasury and General Government Appropriations Act, 1999

Section 654 of the Treasury and General Government Appropriations Act, 1999 (Pub. L. 105-277) requires Federal agencies to issue a Family Policymaking Assessment for any rule that may affect family well-being. This proposed determination would not have any impact on the autonomy or integrity of the family as an institution. Accordingly, DOE has concluded that it is not necessary to prepare a Family Policymaking Assessment.

I. Review Under Executive Order 12630

Pursuant to E.O. 12630, "Governmental Actions and Interference with Constitutionally Protected Property Rights," 53 FR 8859 (Mar. 15, 1988), DOE has determined that this proposed determination would not result in any takings that might require compensation under the Fifth Amendment to the U.S. Constitution.

J. Review Under the Treasury and General Government Appropriations Act, 2001

Section 515 of the Treasury and General Government Appropriations Act, 2001 (44 U.S.C. 3516 note) provides for Federal agencies to review most disseminations of information to the public under information quality guidelines established by each agency

pursuant to general guidelines issued by OMB. OMB's guidelines were published at 67 FR 8452 (Feb. 22, 2002), and DOE's guidelines were published at 67 FR 62446 (Oct. 7, 2002). Pursuant to OMB Memorandum M-19-15, Improving Implementation of the Information Quality Act (April 24, 2019), DOE published updated guidelines which are available at

www.energy.gov/sites/prod/files/2019/12/f70/DOE%20Final%20Updated%20IQA%20Guidelines%20Dec%202019.pdf. DOE has reviewed this NOPD under the OMB and DOE guidelines and has concluded that it is consistent with applicable policies in those guidelines.

K. Review Under Executive Order 13211

E.O. 13211, "Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use," 66 FR 28355 (May 22, 2001), requires Federal agencies to prepare and submit to the Office of Information and Regulatory Affairs ("OIRA") at OMB, a Statement of Energy Effects for any proposed significant energy action. A "significant energy action" is defined as any action by an agency that promulgates or is expected to lead to promulgation of a final rule, and that (1) is a significant regulatory action under E.O. 12866, or any successor Executive Order; and (2) is likely to have a significant adverse effect on the supply, distribution, or use of energy, or (3) is designated by the Administrator of OIRA as a significant energy action. For any proposed significant energy action, the agency must give a detailed statement of any adverse effects on energy supply, distribution, or use should the proposal be implemented, and of reasonable alternatives to the action and their expected benefits on energy supply, distribution, and use.

This proposed determination, which does not propose to amend energy conservation standards for CCWs, is not a significant regulatory action under E.O. 12866. Moreover, it would not have a significant adverse effect on the supply, distribution, or use of energy, nor has it been designated as such by the Administrator at OIRA. Accordingly, DOE has not prepared a Statement of Energy Effects.

L. Review Under the Information Quality Bulletin for Peer Review

On December 16, 2004, OMB, in consultation with the Office of Science and Technology Policy (“OSTP”), issued its Final Information Quality Bulletin for Peer Review (“the Bulletin”). 70 FR 2664 (Jan. 14, 2005). The Bulletin establishes that certain scientific information shall be peer reviewed by qualified specialists before it is disseminated by the Federal Government, including influential scientific information related to agency regulatory actions. The purpose of the bulletin is to enhance the quality and credibility of the Government’s scientific information. Under the Bulletin, the energy conservation standards rulemaking analyses are “influential scientific information,” which the Bulletin defines as “scientific information the agency reasonably can determine will have, or does have, a clear and substantial impact on important public policies or private sector decisions.” *Id.* at 70 FR 2667.

In response to OMB’s Bulletin, DOE conducted formal peer reviews of the energy conservation standards development process and the analyses that are typically used and has prepared Peer Review report pertaining to the energy conservation standards rulemaking analyses.⁴⁰ Generation of this report involved a rigorous, formal, and documented evaluation using objective criteria and qualified and independent reviewers

⁴⁰ “Energy Conservation Standards Rulemaking Peer Review Report.” 2007. Available at energy.gov/eere/buildings/downloads/energy-conservation-standards-rulemaking-peer-review-report-0 (last accessed September 8, 2021).

to make a judgment as to the technical/scientific/business merit, the actual or anticipated results, and the productivity and management effectiveness of programs and/or projects. DOE has determined that the peer-reviewed analytical process continues to reflect current practice, and the Department followed that process for considering amended energy conservation standards in the case of the present action.

VII. Public Participation

A. Participation in the Webinar

The time and date of the webinar are listed in the **DATES** section at the beginning of this document. Webinar registration information, participant instructions, and information about the capabilities available to webinar participants will be published on DOE's website:

www1.eere.energy.gov/buildings/appliance_standards/standards.aspx?productid=3.

Participants are responsible for ensuring their systems are compatible with the webinar software.

B. Procedure for Submitting Prepared General Statements for Distribution

Any person who has an interest in the topics addressed in this NOPD, or who is representative of a group or class of persons that has an interest in these issues, may request an opportunity to make an oral presentation at the webinar. Such persons may submit requests to speak to ApplianceStandardsQuestions@ee.doe.gov. Persons who wish to speak should include with their request a computer file in WordPerfect, Microsoft Word, PDF, or text (ASCII) file format that briefly describes the nature of their interest in this proposed determination and the topics they wish to discuss. Such persons should also provide a daytime telephone number where they can be reached.

Persons requesting to speak should briefly describe the nature of their interest in this proposed determination and provide a telephone number for contact. DOE requests persons selected to make an oral presentation to submit an advance copy of their statements at least two weeks before the webinar. At its discretion, DOE may permit persons who cannot supply an advance copy of their statement to participate, if those persons have made advance alternative arrangements with the Building Technologies Office. As necessary, requests to give an oral presentation should ask for such alternative arrangements.

C. Conduct of the Webinar

DOE will designate a DOE official to preside at the webinar and may also use a professional facilitator to aid discussion. The meeting will not be a judicial or evidentiary-type public hearing, but DOE will conduct it in accordance with section 336 of EPCA (42 U.S.C. 6306). A court reporter will be present to record the proceedings and prepare a transcript. DOE reserves the right to schedule the order of presentations and to establish the procedures governing the conduct of the webinar. There shall not be discussion of proprietary information, costs or prices, market share, or other commercial matters regulated by U.S. anti-trust laws. After the webinar and until the end of the comment period, interested parties may submit further comments on the proceedings and any aspect of the proposed determination.

The webinar will be conducted in an informal, conference style. DOE will present a general overview of the topics addressed in this rulemaking, allow time for prepared general statements by participants, and encourage all interested parties to share their views on issues affecting this proposed determination. Each participant will be allowed to make a general statement (within time limits determined by DOE), before the

discussion of specific topics. DOE will permit, as time permits, other participants to comment briefly on any general statements.

At the end of all prepared statements on a topic, DOE will permit participants to clarify their statements briefly. Participants should be prepared to answer questions by DOE and by other participants concerning these issues. DOE representatives may also ask questions of participants concerning other matters relevant to this proposed determination. The official conducting the webinar will accept additional comments or questions from those attending, as time permits. The presiding official will announce any further procedural rules or modification of the above procedures that may be needed for the proper conduct of the webinar.

A transcript of the webinar will be included in the docket, which can be viewed as described in the *Docket* section at the beginning of this NOPD. In addition, any person may buy a copy of the transcript from the transcribing reporter.

D. Submission of Comments

DOE will accept comments, data, and information regarding this proposed determination no later than the date provided in the **DATES** section at the beginning of this proposed determination. Interested parties may submit comments, data, and other information using any of the methods described in the **ADDRESSES** section at the beginning of this document.

Submitting comments via www.regulations.gov. The www.regulations.gov webpage will require you to provide your name and contact information. Your contact information will be viewable to DOE Building Technologies staff only. Your contact information will not be publicly viewable except for your first and last names,

organization name (if any), and submitter representative name (if any). If your comment is not processed properly because of technical difficulties, DOE will use this information to contact you. If DOE cannot read your comment due to technical difficulties and cannot contact you for clarification, DOE may not be able to consider your comment.

However, your contact information will be publicly viewable if you include it in the comment itself or in any documents attached to your comment. Any information that you do not want to be publicly viewable should not be included in your comment, nor in any document attached to your comment. Otherwise, persons viewing comments will see only first and last names, organization names, correspondence containing comments, and any documents submitted with the comments.

Do not submit to *www.regulations.gov* information for which disclosure is restricted by statute, such as trade secrets and commercial or financial information (hereinafter referred to as Confidential Business Information (“CBI”)). Comments submitted through *www.regulations.gov* cannot be claimed as CBI. Comments received through the website will waive any CBI claims for the information submitted. For information on submitting CBI, see the Confidential Business Information section.

DOE processes submissions made through *www.regulations.gov* before posting. Normally, comments will be posted within a few days of being submitted. However, if large volumes of comments are being processed simultaneously, your comment may not be viewable for up to several weeks. Please keep the comment tracking number that *www.regulations.gov* provides after you have successfully uploaded your comment.

Submitting comments via email. Comments and documents submitted via email also will be posted to *www.regulations.gov*. If you do not want your personal contact

information to be publicly viewable, do not include it in your comment or any accompanying documents. Instead, provide your contact information in a cover letter. Include your first and last names, email address, telephone number, and optional mailing address. With this instruction followed, the cover letter will not be publicly viewable as long as it does not include any comments.

Include contact information each time you submit comments, data, documents, and other information to DOE. No faxes will be accepted.

Comments, data, and other information submitted to DOE electronically should be provided in PDF (preferred), Microsoft Word or Excel, WordPerfect, or text (ASCII) file format. Provide documents that are not secured, that are written in English, and that are free of any defects or viruses. Documents should not contain special characters or any form of encryption and, if possible, they should carry the electronic signature of the author.

Campaign form letters. Please submit campaign form letters by the originating organization in batches of between 50 to 500 form letters per PDF or as one form letter with a list of supporters' names compiled into one or more PDFs. This reduces comment processing and posting time.

Confidential Business Information. Pursuant to 10 CFR 1004.11, any person submitting information that he or she believes to be confidential and exempt by law from public disclosure should submit via email to *CommClothesWashers2019STD044@ee.doe.gov* two well-marked copies: one copy of the document marked "confidential" including all the information believed to be confidential, and one copy of the document marked "non-confidential" with the

information believed to be confidential deleted. DOE will make its own determination about the confidential status of the information and treat it according to its determination.

It is DOE's policy that all comments may be included in the public docket, without change and as received, including any personal information provided in the comments (except information deemed to be exempt from public disclosure).

E. Issues on Which DOE Seeks Comment

DOE welcomes comments and views on any aspect of this proposal from all interested parties.

VIII. Approval of the Office of the Secretary

The Secretary of Energy has approved publication of this notification of proposed determination and request for comment.

Signing Authority

This document of the Department of Energy was signed on December 14, 2021, by Kelly J. Speakes-Backman, Principal Deputy Assistant Secretary for Energy Efficiency and Renewable Energy, pursuant to delegated authority from the Secretary of Energy. That document with the original signature and date is maintained by DOE. For administrative purposes only, and in compliance with requirements of the Office of the Federal Register, the undersigned DOE Federal Register Liaison Officer has been authorized to sign and submit the document in electronic format for publication, as an official document of the Department of Energy. This administrative process in no way alters the legal effect of this document upon publication in the *Federal Register*.

Signed in Washington, DC, on December 15, 2021

Treena V. Garrett
Federal Register Liaison Officer,
U.S. Department of Energy